EUR 500 e
(SECOND EDITION, PART TWO)

EUROPEAN ATOMIC ENERGY COMMUNITY - EURATOM

EURATOM-THESAURUS

PART II

TERMINOLOGY CHARTS USED IN EURATOM'S NUCLEAR DOCUMENTATION SYSTEM

1967

Dissemination of Information

Center for Information and Documentation - CID

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CONTENTS

INTRODUCTION

The Euratom-Thesaurus was developed to serve as an authority list for subject control at the Center for Information and Documentation of the European Atomic Energy Community, which supplies scientists and engineers in research and industry with documentary information on all aspects of nuclear energy. This includes not only nuclear physics and reactor technology, but also such related topics as radiation protection, isotope technology, fabrication and use of nuclear materials and instruments, radiochemistry, and radiobiology.

The first edition, published in January 1964, comprised alphabetical lists of keywords and non-keyword terms, and 42 "arrowgraphs" displaying hierarchical and other semantic relationships between the general-purpose keywords.

The second edition is published in two parts: Part I contains an alphabetical Dictionary of more than 15,000 terms, i.e. both keyword and non-keyword terms.

The graphic display was extended to include not only the general-purpose keywords, but also the more important of the non-keyword terms; the resulting „terminology charts" constitute the present Part II.

The ideas underlying the creation of arrowgraphs and terminology charts are described in the following publication:

— The role of graphic display of concept relationships in indexing and retrieval vocabularies. L. Rolling, pp. 295-325 of „Classification Research", Proceedings of the Elsinore Conference, Munksgaard, Copenhagen, 1964. Also published as report EUR 2291 e.

GUIDELINES

Definitions

The Euratom-Thesaurus can be used in any computer-aided or peek-a-boo card system based on concept coordination. It is not meant to serve for the preparation of conventional subject indexes or card files involving extensive pre-coordination of basic concepts.

At Euratom, the Thesaurus actually serves as a reference tool for indexing and query formulation. Recorded on magnetic disks or tapes, it is also used for the automatic control and posting of terms assigned to documents and queries.

The printed Thesaurus comprises an alphabetical list of all significant terms used in the literature of nuclear energy (Part I) and a collection of charts displaying these terms according to subject fields for easy use by the documentalists (Part II).

In these charts, a number of semantically related terms are grouped to form clusters around the keywords, which are terms particularly representative of the concepts involved. Each subject field is thus divided into a number of non-overlapping polygonal domains, each represented by one keyword (in upper-case font).

The non-keyword terms (in lower-case font) represent near-synonyms of the corresponding keywords, concepts involving a combination of keywords, and terms of inadequate generic levels. They include proper names designating theories and methods as well as names of projects, reactors, alloys, compounds, minerals and biological species.

The „forbidden terms" printed in *italics*, include abbreviations, synonyms and homographic terms. They constitute hints for the indexer and should not be assigned at all; if they are, they are automatically replaced by the corresponding keywords (in the case of synonyms) or submitted to a documentalist for decision (in the case of homographs).

The co-occurrence of keywords and non-keyword terms in a „domain" corresponds to the USE- and SEE-references in the alphabetical list (Part I).

The cross-references (SEE ALSO, RELATED TERM) of the classical thesauri are replaced by the links joining the neighboring keyword domains. The links of various thicknesses represent the strength of the semantic relationship between the concepts represented.

The display schemes do away with the need for extensive cross-referencing and scope notes defining the conceptual coverage of the keywords, since the scope of every keyword is defined by the surrounding non-keyword terminology and limited by the existence of its keyword neighbors.

In the Euratom system, the specific non-keyword terms assigned are automatically supplemented with the keyword(s) under which they appear.

As a result of this posting operation, every topic in the document is represented by keywords, so that exhaustivity of retrieval is ensured by using a limited number of terms, i.e. the keywords, in the query translation. The non-keyword terms are used for retrieval only if the object of the query is very specific and an exhaustive answer is not required.

The figures accompanying the keywords represent their frequency of assignment (in hundreds) to the first 545,000 documents incorporated into the Euratom collection.

These data are used for an advance estimation of the number of references retrieved in a search involving a proposed combination of keywords.

Related keywords of other subject fields appear in the margin of the terminology charts. The accompanying figures refer to the pages where these keywords can be found in their semantic context.

Role of the graphic display

The terminology charts are used for indexing, query formulation, and dictionary updating.

The indexer will mentally draw a line circumscribing the conceptual areas covered on the charts by the document to be analyzed, and write down the pertinent terms enclosed. This results in a marked gain in time and an increase in indexing consistency.

While it is important for good indexing to find the *most specific* terms applying to a concept expressed in a document, it is absolutely essential for good retrieval to find *all the terms* to which relevant documents could have been posted in the indexing phase.

Whereas an alphabetical thesaurus requires a lot of page-thumbing to follow the cross-references up to a few pertinent terms, the use of terminology charts makes it practically impossible to overlook pertinent terms, i.e. terms which could have been assigned to relevant documents.

Heavily posted keywords present low selectivity, whereas seldom used terms encumber the system. One method of improving a thesaurus is therefore to determine periodically the frequency of assignment of its keywords; low-frequency keywords can be eliminated and their postings transferred to terms of higher generic level; the posting to high frequency keywords can be divided between a number of newly introduced terms representing more specific concepts.

The terminology charts are valuable tools for this operation.

Obsolete keywords are deleted by merging two domains. Splitting of highly posted keywords amounts to introducing new boundaries. The chart shows clearly which new references are to be introduced into the alphabetical Dictionary.

Recent modifications

The Euratom-Thesaurus is open-ended, i.e. it can be continuously updated by the addition of new specific terms linked to existing keywords, by the creation of new keywords from existing specific terms, and by the deletion of unfrequently used keywords.

The following terms were introduced as keywords since the printing of the alphabetical dictionary in December 1966 (EUR 500 e, second edition, part I):

AUTOMATION
BARYONS
BEAM OPTICS
BIOSYNTHESIS
CARRIERS
CHEMISORPTION
COMPRESSION
CONSERVATION LAWS
COUPLING
DIODES
DISTANCE
DISTURBANCES
DNA
GAS QUENCHING
IMPEDANCE
INDUSTRY
INHIBITION
LEGAL ASPECTS
MULTIPOLES
NUCLEOSIDES
NUCLEOTIDES
OPTICAL PROPERTIES
ORGANIC OXYGEN COMPOUNDS
RELAXATION
RESPIRATION
SLIP
SOLID-STATE COUNTERS
SPORES
TRANSITION HEATS
WAVE PROPAGATION

The following keywords were removed from the thesaurus, and their postings transferred as follows:

ACTIVATED CARBON	**USE** CARBON + ADSORBENTS
ASBESTOS	**USE** MINERALS + REFRACTORIES
BYPASS	**USE** COOLANT LOOPS
CAST IRON	**USE** IRON
COMPRESSORS	**USE** COMPRESSION
DAREX PROCESS	**USE** REPROCESSING
ELECTROMAGNETIC PUMPS	**USE** PUMPS
ELECTROPLATING	**USE** ELECTRODEPOSITION + PLATING
FAST FISSION FACTOR	**USE** MULTIPLICATION FACTORS
FERMI AGE	**USE** SLOWDOWN
FISSION CHAMBERS	**USE** NEUTRON DETECTION + IONIZATION CHAMBERS
FLOTATION	**USE** ORE PROCESSING + ENRICHMENT
GAS FUEL	**USE** FUELS + GASES
GLOW DISCHARGES	**USE** ELECTRIC DISCHARGES
MONAZITES	**USE** THORIUM ORES
OZONE	**USE** OXYGEN
PAYLOAD	**USE** TRANSPORT + WEIGHT
PHOTOELECTRIC CELLS	**USE** PHOTOELECTRIC EFFECT
PUREX PROCESS	**USE** REPROCESSING
RELAYS	**USE** SWITCHES
RESONANCE ESCAPE PROBABILITY	**USE** MULTIPLICATION FACTORS
SUBMARINES	**USE** SHIPS
THERMAL FISSION FACTOR	**USE** MULTIPLICATION FACTORS
THERMAL UTILIZATION	**USE** MULTIPLICATION FACTORS
THERMOELECTRIC CELLS	**USE** THERMOELECTRICITY

The updated list of general-purpose keywords (page IX-XV) shows their assignment frequencies (first column) and the chart numbers where they can be found in their semantic context (second column).

Homographs

The attention of the users of the Euratom-Thesaurus is drawn to the restricted use of some of the current homographs.

In a number of cases two or more keywords represent different aspects of the homograph. Examples: PLASMA is to be used in physics, BLOOD PLASMA in biology; TUBES is used for hollow cylindric bodies, not in the sense of ELECTRON TUBES.

The use of a number of keywords is restricted to their most usual meaning in the nuclear field. Examples: FATIGUE is restricted to mechanical fatigue, LIFETIME applies to particles, and POISONING to reactors; the other meanings of these words can be expressed by the keywords PHYSIOLOGY, AGE, and TOXICITY, respectively.

Non-keyword homographs are generally "forbidden terms".

Example: — RIBS see BONES or FINS.

GENERAL-PURPOSE KEYWORDS

28091	**45**	ABSORPTION
34504	**36**	ABUNDANCE
5062	**56**	ACCELERATORS
3395	**53**	ACCIDENTS
2419	**12**	ACETATES
3382	**12**	ACETIC ACID
1650	**10**	ACETONE
928	**11**	ACETYLENES
8686	**12**	ACIDITY
2715	**12**	ACIDS
993	**12**	ACRYLIC ACID
1142	**14**	ACTINIDES
164	**14**	ACTINIUM
4587	**45**	ACTIVATION
4151	**20**	ACTIVATION ANALYSIS
831	**27**	ADHESION
1325	**04**	ADRENAL GLANDS
7875	**27**	ADSORPTION
615	**34**	AERODYNAMICS
2294	**09**	AEROSOLS
274	**21**	AFRICA
7025	**01**	AGE
1851	**22**	AGE ESTIMATION
1089	**02**	AGRICULTURE
12918	**09**	AIR
1582	**32**	AIRCRAFT
1740	**13**	ALBUMINS
4120	**10**	ALCOHOLS
1373	**10**	ALDEHYDES
856	**02**	ALGAE
2854	**14**	ALKALI METALS
791	**14**	ALKALINE EARTH METALS
755	**13**	ALKALOIDS
622	**11**	ALKANES
1527	**11**	ALKENES
3131	**11**	ALKYL RADICALS
3550	**30**	ALLOTROPY
4673	**26**	ALLOYS
2003	**47**	ALPHA BEAMS
1695	**45**	ALPHA DECAY
1163	**54**	ALPHA DETECTION
9884	**47**	ALPHA PARTICLES
376	**37**	ALPHA SPECTROMETERS
11050	**14**	ALUMINUM
588	**14**	AMERICIUM
1710	**13**	AMIDES
6753	**13**	AMINES
6851	**13**	AMINO ACIDS
2462	**13**	AMMONIA
4176	**13**	AMMONIUM COMPOUNDS
3609	**42**	AMPLIFIERS
2328	**42**	ANALOG SYSTEMS
47320	**57**	ANALYSIS
922	**06**	ANEMIA
439	**07**	ANESTHESIA
18512	**45**	ANGULAR DISTRIBUTION
4386	**44**	ANGULAR MOMENTUM
8048	**01**	ANIMAL CELLS
8109	**03**	ANIMALS
3389	**47**	ANIONS
4360	**37**	ANISOTROPY
5360	**30**	ANNEALING
1657	**45**	ANNIHILATION
2249	**41**	ANODES
785	**11**	ANTHRACENE
1434	**07**	ANTIBIOTICS
1389	**07**	ANTIBODIES
1104	**07**	ANTIGENS
159	**49**	ANTIHYPERONS
375	**49**	ANTIMESONS
1156	**14**	ANTIMONY
336	**49**	ANTINEUTRINOS
82	**48**	ANTINEUTRONS
421	**48**	ANTINUCLEONS
776	**48**	ANTIPROTONS
202	**21**	ARCTIC REGIONS
6156	**14**	ARGON
1697	**11**	AROMATICS
784	**14**	ARSENIC
702	**11**	ARYL RADICALS
1961	**21**	ASIA
84	**14**	ASTATINE
2885	**43**	ASTROPHYSICS
6584	**43**	ATMOSPHERE
5467	**44**	ATOMIC MODELS
15058	**47**	ATOMS
864	**43**	AURORAE
1021	**30**	AUSTENITE
1226	**21**	AUSTRALIA
111	**42**	AUTOMATION
4863	**42**	BACKGROUND
4481	**03**	BACTERIA
615	**03**	BACTERIOPHAGES
608	**43**	BALLOONS
1227	**14**	BARIUM
1559	**33**	BARRIERS
838	**49**	BARYONS
991	**18**	BATTERIES
289	**37**	BEAM OPTICS
10536	**47**	BEAMS
1159	**33**	BEARINGS
2315	**01**	BEHAVIOR
3330	**11**	BENZENE
912	**12**	BENZOIC ACID
96	**14**	BERKELIUM
6626	**14**	BERYLLIUM
298	**51**	BERYLLIUM MODERATOR
7357	**45**	BETA DECAY
1979	**54**	BETA DETECTION
7511	**49**	BETA PARTICLES
2311	**37**	BETA SPECTROMETERS
1764	**56**	BETATRONS
13684	**57**	BIBLIOGRAPHY
7171	**44**	BINDING ENERGY
10865	**01**	BIOCHEMISTRY
4418	**01**	BIOLOGY
909	**01**	BIOSYNTHESIS
1390	**03**	BIRDS
2245	**14**	BISMUTH
264	**25**	BITUMENS
1067	**52**	BLANKETS
5078	**05**	BLOOD
2161	**05**	BLOOD CELLS
2490	**05**	BLOOD CIRCULATION
1997	**05**	BLOOD FORMATION
2423	**05**	BLOOD PLASMA
2842	**05**	BLOOD SERUM
2657	**05**	BLOOD VESSELS
8278	**04**	BODY
6388	**35**	BOILING
2627	**29**	BONDING
3477	**05**	BONE MARROW
5049	**04**	BONES
804	**15**	BORATES
770	**15**	BORIDES
188	**15**	BOROHYDRIDES
3081	**14**	BORON
1888	**36**	BOSONS
3324	**04**	BRAIN
888	**29**	BRAZING
658	**55**	BREAKDOWN
2522	**53**	BREEDING
3354	**46**	BREMSSTRAHLUNG
1957	**27**	BRITTLENESS
729	**15**	BROMIDES
1110	**14**	BROMINE
2109	**54**	BUBBLE CHAMBERS
1357	**35**	BUBBLES
1127	**48**	BUCKLING
1124	**26**	BUILDING MATERIALS
1904	**33**	BUILDINGS
1233	**53**	BURNOUT
3834	**53**	BURNUP
380	**11**	BUTADIENE
604	**11**	BUTANE
368	**10**	BUTANOL
1949	**12**	BUTYL PHOSPHATES
1271	**11**	BUTYL RADICALS
301	**11**	BUTYLENE
827	**41**	CABLES
2785	**14**	CADMIUM
3738	**14**	CALCIUM
153	**14**	CALIFORNIUM
1757	**35**	CALORIMETERS
1085	**38**	CAMERAS
6081	**06**	CANCER
2567	**29**	CANNING
2010	**41**	CAPACITORS
722	**33**	CAPILLARIES
7606	**45**	CAPTURE
446	**13**	CARBAMATES
2239	**15**	CARBIDES

Neuroblasts Thymocytes
Neurons Melanocytes
Osteoblasts Fibroblasts
Phagocytes Amnion Cells
ANIMAL CELLS
Hela Cells Ehrlich Ascites
Mast Cells L Cells
80

PLANT CELLS
Chloroplasts
16

Golgi Apparatus
Reticular Cells Cell Nuclei
Plasma Cells Lymphoid Cells
Kupffer Cells
Neurons **CYTOLOGY** Axons
Cytoplasm Cell Growth
Chromatin Lysosomes
Pycnosis Astrocytes
Growth
67

BIOSYNTHESIS
10

METABOLISM
Catabolism *Uptake*
Biological Half-Life
Turnover Time
Retention
175

Anaphase Prophase
Telophase *Cell Division*
Metaphase Meiosis
MITOSIS
Spermatogenesis
32

BIOCHEMISTRY
Synergism
109

Life
BIOLOGY
Biometry
Biophysics
Limnology
Metamorphosis
44

INHIBITION
8

Oxidoreductases
Dehydrogenases
Catalase
Oxidases
Cytochromes
Lyases Hydrolases
Hyaluronidase Amylase
ENZYMES Trypsin
Coenzymes Nad Fibrinolysin
Luciferase Nadp Pepsin
Nadh Lysozyme
Urease
Transferases Esterases
Kinases Lipases
Polymerases DNA-ase
Phosphorylase Phosphatases
RNA-ase ATP-ase
Transaminases Nucleotidases
63

Radiotoxins
RADIOBIOLOGY
27

Photosensitivity
RADIOSENSITIVITY
Schwartzman Phenomenon
75

ODOR
Flavor
3

PHYSIOLOGY
Sleep Reflexes
Biological Fatigue
Estrous Cycle
Biological Shock
43

SURVIVAL TIME
31

Pasteurization
Radiosterilization
STERILIZATION
Sterility
Germ-Free Disinfection
19

BEHAVIOR
Psychology
Volition
Lethargy
Learning Avoidance
Conditioned Reflexes
Schizophrenia
Biological Shock
23

AGE *Growth*
Life Span Animal Growth
Longevity Children
Death Pediatrics
Nymphs Pupae
70

PRESERVATION
14

01 BIOSYNTHESIS
03 MICROORGANISMS
03 BACTERIA
17 FERMENTATION
01 ENZYMES
10 CARBOHYDRATES
07 DIET
03 MILK
17 PHOTOSYNTHESIS
01 BIOCHEMISTRY
23 SOILS
03 INSECTS
03 PARASITES
01 PLANT CELLS
03 EGGS
03 MEAT
03 FISH

ALGAE
Chlorella Plankton
Euglena Lichens
Scenedesmus Seaweeds
9

FUNGI
Actinomyces Aspergillus
Lichens Streptomyces
Mildew Penicillium
Conidia Neurospora
Torula Phycomyces
Torulopsis Ustilago
Rhizopus Physarum
Candida
9

YEASTS
Saccharomyces
10

CHLOROPHYLL
Chloroplasts
Pheophytin
5

ROOTS
Bulbs
10

POTATOES
4

Germination
SEEDS
Seedlings
Endosperm
17

Plant Growth
Growth
Botany *Vegetation*
PLANTS
Forests Leaves
Trees Stems Flowers
Oaks Meristem Sunflowers
Pines Buds Pollen
Ferns Cotton
Shrubs Grass Weeds
Allium Alfalfa Arabidopsis
Lilium Clover Digitalis
Lupinus Phaseolus Nicotiana
Trillium Pisum Xanthium
Tradescantia Vicia
Essential Oils Leguminosae
69

VEGETABLES
Allium Lupinus
Asparagus Onions
Beans Peas
Beets Radishes
Broccoli Soybeans
Cabbage Spinach
Carrots Squash
Cucumbers Tomatoes
Lettuce Vetch
10

FERTILIZERS
Superphosphates
3

AGRICULTURE
Cultures
Crops
11

Nutrition
FOOD
Seafood
Bacon Cocoa
Bread Coffee
Butter Tea
Cheese Juices
Jam Wine
42

PESTICIDES
Insecticides
Dieldrin
Hyamine
Herbicides
3

CEREALS
Rye Rice Oats
Corn Maize
Flour Zea Mays
Barley Wheat
Hordeum Triticum
21

FRUIT
Apples Grapefruit
Bananas Grapes
Cherries Lemons
Citrus Oranges
Coconuts Peaches
Peanuts Pears
Strawberries
7

PLANTS - **02**

Entomology
INSECTS
Drosophila, Flies, Mosquitoes, Grasshoppers, Wasps, Beetles, Silkworm, Moths, Cockroaches
Larvae, Pupae, Nymphs, Habrobracon, Tribolium, Melanoplus, Mormoniella, Ephestia, Chortophaga
22

PARASITES
Ascaris
Fruit Flies
Schistosoma
Trichinella
Trichinosis
6

SPORES
Microspores
4

Cultures
MICROORGANISMS
Protozoa, Amoeba, Tetrahymena, Paramecia, Rickettsia, Pelomyxa, Infusoria
17

BACTERIOPHAGES
6

Cultures
BACTERIA
Bacillus . . . (*)
Clostridium . . . (*)
Bacterium . . . (*)
Micrococcus . . . (*)
Nocardia
Proteus, Pneumococcus, Pseudomonas, Salmonella, Rhodospirillum, Serratia, Rickettsia, Shigella, Staphylococci, Streptococcus, Lactobacillus, Brucella
(*) see specific index terms in dictionary
45

EGGS
Yolk
9

BIRDS
Fowl, Chickens, Waterfowl, Ducks, Pigeons, Sparrows, Newcastle Disease
14

Vertebrates
Amphibians: Frogs, Salamanders
Reptiles: Lizards, Snakes
Mammals: Horses, Bats, Burros, Whales, Deer, Rodents, Swine, Hamsters, Cats, Squirrels

ANIMALS
Veterinary
Invertebrates
Sea Urchins, Arthropods, Crustaceans, Molluscs, Snails, Oysters
Worms: Annelids, Helminths
81

FISH
Salmon, Trouts, Codfish, Tuna Fish, Goldfish, Guppy, Carassius
13

Goats
CATTLE
Cows, Sheep, Calves, Lambs
10

RABBITS
36

GUINEA PIGS
15

DOGS
Beagles
31

Primates
MONKEYS
Macacus Rhesus, Macaca Mulatta
7

MICE
Dormice
82

RATS
Cotton Rats
121

MEAT
Pork, Bacon, *Beef*, Ham
9

MILK
Lactation
19

08 GONADS — 07 HORMONES — 01 METABOLISM

02 FOOD

13 UREA

01 PHYSIOLOGY

01 BEHAVIOR

05 BONE MARROW

Hepatomas Cirrhosis
LIVER
Biliary Tract Bile Ducts
Portal System Bile
Kupffer Cells
Hepatitis
Jaundice
65

THYROID
Goiter Antithyroid Drugs
Basedow Hyperthyroïdism
Thyroiditis Hypothyroïdism
Myxedema Thyroidectomy
Thyrotoxicosis
41

Secretion
GLANDS
Pituitary Gland
Mammary Glands
Pancreas
Salivary Glands
Prostate
Hypothalamus
Pineal Gland
Sebaceous Glands
Sweat Glands
36

ADRENAL GLANDS
Adrenalectomy
13

STOMACH
Ingestion Digestion
Gastritis Vomiting
Gastrointestinal Tract
18

Colon
Peritoneum
Rectum Appendix
Duodenum Mesentery
Digestion Diarrhea
INTESTINE
Enteritis Gastrointestinal Tract
42

FECES
Excretion
8

SPLEEN
Splenectomy
Splenomegaly
31

THYMUS
Thymocytes
11

Excretion
URINE
Glycosuria
Albuminuria
36

KIDNEYS
Renal Clearance
Glomeruli Uremia
Nephroblastomas
Hydronephrosis
Nephritis
Pyelography
35

Whole-Body Irradiation
Whole-Body Counting
BODY
Obesity Pelvis
Mediastinum Limbs
Homeostasis Legs
Autopsy Hands
Organs Face
Abdomen Head
Fever Chest
Hypothermia Sweat
83

Mental Diseases Glioblastomas
Pineal Gland Gliomas Cerebellum
Hypothalamus Cerebral Cortex
Thalamus Astrocytes Astrocytomas
BRAIN
Hydrocephalus Microcephaly
Electroshock Encephalitis
Electroencephalography
33

RESPIRATION
Inhalation
Breath
Respiratory Equipment
Masks

Asthma Respiratory Tract
Emphysema
Bronchitis
LUNGS
Bronchi
Pneumonia Trachea
Pneumonitis Pleura
Pneumoconiosis
36

Hypertrophy
TISSUES
Tissue Extracts Adipose Tissue
Epithelium
Urinary Tract Cartilage
Tissue Cultures
Cultures
Keloids Tendons
Connective Tissue
Mucosa Lips
Autopsy Neck Face
Biopsy Ears Tongue
Pharynx Larynx Tonsils
Nasopharynx Esophagus
164

Neurology Nerves
NERVOUS SYSTEM
Neurons Nerve Cells Axons
Neuroblasts *Neuralgia* Taste
Ganglions Vagus Pain
Auditory Organs Astrocytomas
Cerebellum Spinal Cord
Cerebrospinal Fluid
Poliomyelitis Paralysis
Epilepsy Schizophrenia
Mental Diseases
Stimuli Stimulation
Reflexes Learning
Conditioned Reflexes
Tranquillizers
30

Vision
Ophtalmology
EYES
Cornea
Cataracts
Conjunctiva
Conjunctivitis

Trachoma
Uveitis Uvea
Retina
Retinoblastomas
Electroretinography
Choroid
Sclera
Astigmatism
16

BONES Osteomyelitis
Skeleton Tibia Chondrosarcomas
Osteons Osteosarcomas
Ribs
Vertebrae Ricketts
Spine Jaw Femur Osteoporosis
Skull Teeth Dentin Osteoblasts
50

Diaphragms
MEMBRANES
Cell Membranes
Dialysis Osmosis
Donnan Theory
Septum Amnion
22

Radiodermatitis **SKIN** Hair
Dermatitis Epidermis *Follicles*
Erythema Subcutaneous Scalp
Eczema Psoriasis Epilation
Acne Warts Lupus Feathers
Sebaceous Glands Leather
39

MUSCLES
Myosin Myomas
Myoglobin Actin
Biological Fatigue
20

HEART
Cardiac Bradycardia
Myocardium Coronaries
Electrocardiography
19

BARRIERS 33

BLOOD VESSELS 05

BLOOD CIRCULATION 05

ANATOMY - **04**

04 BONES

06 ANEMIA

07 ANTIBODIES

06 RADIATION INJURIES

04 HEART

04 LUNGS

Megakaryocytes
BONE MARROW
Myeloma
Myeloid Leukemia
35

Erythroblasts *Hemopoiesis*
BLOOD FORMATION
Erythropoietin Reticulocytes
20

BLOOD VESSELS
Aorta Angiomas
Veins Thrombosis
Arteries Arteriosclerosis
Coronaries Ischemia
Carotid Arteries *Embolism*
Intravenous Vasoconstriction
Portal System
27

HEMORRHAGE
Menorrhagia
9

HEMOGLOBIN
Hematin Hemosiderin
Hemin Methemoglobin
Heme Hematoporphyrin
10

Hematology
BLOOD
Uremia
Hyperglycemia
Septicemia
Polycythemia
Purpura
51

Reticulocytes
Polycythemia
Hemagglutination
ERYTHROCYTES
30

BLOOD CELLS
Platelets
Megakaryocytes
Hematocrit
22

BLOOD CIRCULATION
Blood Pressure Ischemia
Hypertension Portal System
Hypotension Vasoconstriction
25

BLOOD PLASMA
24

Thymocytes
Lymphopenia
Lymphoid Cells
LYMPHOCYTES
11

LEUCOCYTES
Leukopenia Monocytes
Phagocytosis *Granulocytes*
Neutrophils Eosinophils
23

BLOOD SERUM
28

Lymphosarcomas **LYMPH SYSTEM**
Lymphomas Reticuloendothelial System
Lymphoblastomas Thoracic Duct
Lymphogranulomas Hodgkin Disease
Myeloma Lymph Vessels Lymph Nodes
23

COAGULATION
Dicumarol Thrombin
Heparin Prothrombin
Hemophilia Thromboplastin
Fibrinolysis Flocculation
7

LEUKEMIA 06

07 RADIOTHERAPY — 07 MEDICINE — 07 ANTIGENS — 07 IMMUNITY

05 LEUCOCYTES

05 BLOOD

05 HEMOGLOBIN

03 BACTERIA

03 MICROORGANISMS

Melanomas
Seminomas
Epithelioma
Neuroblastomas
Nephroblastomas
Retinoblastomas
CANCER
Carcinomas
Adenocarcinomas
Sarcomas
Fibrosarcomas
Lymphosarcomas
Osteosarcomas
Chondrosarcomas
60

CARCINOGENESIS
18

METASTASES
10

LEUKEMIA
Myeloid Leukemia
15

ANEMIA
Aplastic Anemia
Pernicious Anemia
9

RADIATION SICKNESS
Nausea
Vomiting
25

RADIATION INJURIES
Radiodermatitis
RBE
149

LETHAL DOSE
37

TUMORS
Cushing Syndrome — Angiomas
Hodgkin Disease — Melanomas
Ehrlich Ascites — Astrocytomas
Glioblastomas — Granulomas
Papillomas — Lymphogranulomas
Adenomas — Lymphomas
Gliomas — Myeloma
Hepatomas
Cysts
60

INFECTIONS Herpes Zoster
Botulism — Osteomyelitis — Syphilis
Cholera — Poliomyelitis — Malaria
Influenza — Tuberculosis — Typhus
Otitis — Tetanus — Typhoid
Pneumonia — Thyroiditis — Trachoma
Trichinosis — Tularemia
Newcastle Disease
Virulence
Mycoses
20

Warts
Rickettsia
Herpes Zoster
VIRUSES
Influenza Virus
Vaccinia Virus
Polyoma Virus
Polio Virus
Tobacco Mosaic
9

DISEASES

Diabetes — Gout
Abscesses — Bursitis
Acromegaly — Mongolism
Anorexia — Dystrophy
Arthritis — Fistulae

Skin Diseases
Dermatitis — Eczema
Lupus — Psoriasis
Acne — Alopecia
Erythema — Keloids

Tissue Diseases
Gangrene — Sarcoidosis
Fibrosis — Hypertrophy
Necrosis — Ulcers

Kidney Diseases
Albuminuria — Hydronephrosis
Glycosuria — Polyuria
Nephrosclerosis — Nephritis

Lung Diseases
Asthma — Berylliosis
Emphisema — Pneumoconiosis
Silicosis — Pneumonitis

Gland Diseases
Basedow — Goiter
Hyperthyroidism — Thyroiditis
Hypothyroidism — Myxedema
Thyrotoxicosis — Splenomegaly
Cushing Syndrome — Mastitis

Bone Diseases
Osteoporosis — Rickets
Spondylitis — Bone Fractures
Aplasia

Rheumatoid Arthritis — Obesity
Malaria — Mycoses
Trichinosis — Warts
Syphilis — Herpes Zoster
Amenorrhea — Virulence

Blood Diseases
Polycythemia — Hemophilia
Purpura — Uremia
Septicemia — Hyperglycemia
Hypertension — Hypotension
Ischemia — *Embolism*
Hemosiderosis — Arteriosclerosis
Telangiectasis — Thrombosis

Heart Diseases
Angina Pectoris — Bradycardia
Myocardial Infarction

Liver Diseases
Cirrhosis — Hepatitis
Jaundice

Nervous Diseases
Deafness — Epilepsy
Schizophrenia — Myelosclerosis
Myelitis — Psychoses
Paralysis — *Neuralgia*
Encephalitis — *Parkinsonism*
Lethargy

Eye Diseases
Blindness — Conjunctivitis
Eye Cataracts — Trachoma
Uveitis

Intestinal Diseases
Sprue — Diarrhea
Enteritis — Peritonitis
Gastritis

75

RADIATION DOSES
46

46 GAMMA RADIATION — 38 RADIOAUTOGRAPHY

01 RADIOSENSITIVITY — 46 X RADIATION — 46 RADIATION DOSES — 13 GLOBULINS — 13 SULFONAMIDES — 03 BACTERIA

04 GLANDS — 10 STEROIDS — 01 METABOLISM — 02 FOOD

Contrast Media
Radiology
Radiodiagnosis
RADIOGRAPHY
Gammagraphy Diodrast Kymography
Angiography Histograms Pyelography
41

Radiology
RADIOTHERAPY
Neutron Capture Therapy
Sieve Irradiation
Rotation Therapy
Plesiotherapy
Radiosurgery
Applicators
87

ANTIGENS
Tuberculin
11

Interferon **ANTIBODIES**
Agglutinins Antisera
Antitoxins Hemagglutinins
Hemolysins Precipitins
14

Tolerance **IMMUNITY**
Vaccination Blood Groups
Allergy Agglutination
Hemolysis Complement
Hemagglutination Endotoxins
Radioimmunology
30

ANTIBIOTICS
Actinomycin Chloramphenicol
Streptomycin Penicillin
Puromycin Tetracyclines
Mitomycin Aureomycin
Neomycin Terramycin
Erythromycin Polymixin
14

TOXICITY
Pharmacology
39

Radiodiagnosis
DIAGNOSIS
Prothrombin Time
Scintigraphy
48

Therapy
Chemotherapy
Acupuncture
Iontophoresis
MEDICINE
Tropical Medicine
Dentistry Gynecology
Pediatrics Neurology
Veterinary *Prognosis*
Ophtalmology Prophylaxis
Hospitals First Aid
103

Ablations
Surgical materials
Radiosurgery
SURGERY
Adrenalectomy
Thyroidectomy
Sympathectomy
Hypophysectomy
Splenectomy
Vagotomy
Denervation
Parabiosis
Electrocoagulation
35

ANESTHESIA
Anesthetics
4

TRANSPLANTS
Grafts Chimeras
Transfusions
31

Ointments
Pharmaceuticals
DRUGS
Heparin
Dicumarol
Tromexan
Angiotensin
Tranquillizers
Reserpine
Promazine
Barbituric Acid
Phenobarbital
Amital
Narcotics
Meperidine
Methadone
Morphine
Anesthetics
Cocaine
Nembutal
Procaine
Thiopental
Antimitotic Drugs
Radiomimetic Drugs
Thio-tepa
Diazo-oxo-norleucine
Chlorambucil
Colchicine
Endoxan
Aminopterine
Acriflavine
Myleran
Methotrexate
Nitrogen Mustard
Fluorouracils

Mannomustine
Mercaptopurine
Proflavine
Vinblastine
Dibenamine
Penicillamine
Stilbamidine
Saccharin
Pregnenolone
Phenothiazines
Phenolphthalein
Isoniazid
Histamine
BAL
PAS
Urotropin
Analgesics
Antipyrine
Codeine
Phenacetin
Antihistaminics
Dramamine
Benadryl
Promethazine
Radioprotective Substances
AET Bufotenine
MEA Serotonin
MEG Unithiol
Mercaptopropylamine
MPA
Antifein
Psychotropic drugs
Iproniazid
Estrogens
Stilbestrol
Leukogen

Psoralen
Lysergic acid
Aloe
Ouabain
Strophantin
Atropine
Betaine
Cinchonine
Ergotamine
Quinine
Strychnine
Digitalis
Digitoxin
Antithyroid Drugs
Thiouracil
Diuretics
Neohydrin
Chlorothiazide
Salyrgan
Parasympathomimetics
Acetylcholine
Eserine
Neostygmine
Pilocarpine
Sympathomimetics
Adrenaline
Dopamine
Benzedrine
Tyramine
Adrenochrome
Ephedrine
Naphazoline
Phenylephrine

77

HORMONES
Pituitary
ACTH
STH
TSH
Gonadotropins
FSH
LH
LTH
Oxytocyn
Vasopressin
Pancreatic
Insulin
Glucagon
Estrogens
Estradiol
Estrone
Progesterone
Estriol
Erythropoietin
Prostaglandin
Intrinsic factor
Adrenal
Adrenaline
Corticosteroids
Aldosterone
Cortisol
Cortisone
Hydrocortisone
Prednisone
Prednisolone
Doca
Thyroidal
Thyronine
Thyroxine
Parathormone
Triiodothyronine
Androgens
Testosterone
Ketosteroids
Pregnenolone
50

VITAMINS
Vitamin A
Vitamin B Group
Choline
Folic Acid
Vitamin B-1
Vitamin B-2
Vitamin B-4
Adenine
Vitamin B-5
Vitamin B-6
Vitamin B-12
Vitamin C
Vitamin D
Vitamin D-2
Ergosterol
Vitamin D-3
Vitamin E
Vitamin H
Vitamin H-1
Vitamin K
Vitamin K-1
Vitamin P
Bioflavanoids
Vitamin PP
Citrovorum factor
23

DIET
Nutrition
Fasting
Food Chaln
28

SALICYLIC ACID 12 — CYSTEINE 13 — ALKALOIDS 13 — CHOLESTEROL 10

SEX Women X Chromosome
Uterus Menorrhagia
Vagina Ovaries Menopause
Vulva Ovulation Amenorrhea
Oocytes *Cervical Carcinoma*
48

GONADS
Testes *Follicles*
Gametes
Ovaries Ovulation
Sperm Spermatogenesis
Sterility Castration
Oocytes Seminomas
Seminal Vesicles
Corpora Lutea
35

CHROMOSOMES
Chromatin Chromatids
Genes Crossing-Over
Ploidy X Chromosome
32

REGENERATION
Healing Wounds
21

Sociology
MAN
Children
Women
187

GENETICS
Genes Heredity
Lethal Genes Hybrids
Genotype Degeneration
Phenotype Heterozygotes
40

REPRODUCTION
Fertility Progeny
Sterility Zygotes
Parthenogenesis Autogamy
Gynogenesis Litter Size
Gametes Pollen
Oocytes Vegetative Propagation
24

EMBRYOS
Yolk Sac
Chorioallantoic Membrane
19

FETUSES
Amnion
11

MALFORMATIONS
Abnormalities
Hydrocephalus
Telangiectasis
15

MUTATIONS
Crossing-Over
33

PREGNANCY
Placenta
Litter Size
Parturition
Progeny
14

20 FISSION PRODUCTS — 24 WATER — 24 VAPORS

46 SHIELDING

53 MONITORING

25 TEXTILES

43 ATMOSPHERE

24 SUSPENSIONS

29 POWDERS

Natural Activity
RADIOACTIVITY
Radioactive Materials
Radiation Levels
Radioactive Minerals
MP-Activity *Curie*
197

Ecology Biosphere
ENVIRONMENT
Reactor Sites
In Vitro
Cell Cultures
68

RAIN
Snow
15

Moisture
HUMIDITY
Hygrometry
22

Weather Clouds
METEOROLOGY
Sutton Theory
20

WIND
8

AIR
Air Conditioning
Ventilation
129

RADIATION PROTECTION
Health Physics Gloveboxes
Biological Shielding Hot Cells
Manipulators
135

FALLOUT
Radioactive Clouds
Sutton Theory
49

AEROSOLS
Sutton Theory
Fog *Smokes*
23

CONTAMINATION
Pollution MPC
77

Shoes
CLOTHING
Protective Clothing
4

Protection
SAFETY
Hazards
Health Physics
Civil Defense
MP-Activity
Insurance
85

DECONTAMINATION
Washout *Scrubbers*
46

DUSTS
Berylliosis
Pneumoconiosis
Silicosis
17

PERSONNEL
Education Training
Dial Painters
52

LEGAL ASPECTS
Insurance
3

Sociology
POPULATIONS
Eskimos Filipinos Colonies
25

CLEANING Polishing
Pickling Electropolishing
31

MAN 08 — STATISTICS 36 — FILTERS 33 — IMPURITIES 19 — ETCHING 30 — PARTICLES 47

25 PLASTICS — 19 ION EXCHANGE MATERIALS — 11 ETHYLENE — 11 VINYL RADICALS — 11 HYDROCARBONS

12 ESTERS — 11 STYRENE — 12 SULFONIC ACIDS — 13 SULFONAMIDES — 15 PHOSPHATES — 07 DRUGS — 07 HORMONES

Araldite
RESINS
Amberlite
Amber
31

POLYETHYLENES
Carbowax
Marlex
PTFE
23

Formvar
PVA PVC PVP
POLYVINYLS
9

Mylar
Dacron **POLYESTERS**
5

POLYSTYRENE
9

Polycarbonates Teflon
Polypeptides Polyurethanes
Polyamides Polyphenols
Graft Polymers
POLYMERS
Polypropylene
Polyisoprene
Polyethers
Dimers
52

ORGANIC BROMINE COMPOUNDS
Brominated Hydrocarbons Bromoform
Bromosulfophthalein BUDR AET
16

CARBON TETRACHLORIDE
12

ORGANIC CHLORINE COMPOUNDS
Chlorinated Hydrocarbons DDT PVC
Chloroform Chloral Chloramine Chloranil
Chlorothiazide Chlorpromazine
35

ORGANIC FLUORINE COMPOUNDS
Fluorinated Hydrocarbons Fluoroform
Freons Teflon TTA PTFE KEL-F
29

ORGANIC HALOGEN COMPOUNDS
Halogenated Hydrocarbons
5

ORGANIC IODINE COMPOUNDS
Iodinated Hydrocarbons Iodoform
12

SUGARS
Fructose Glucose
Galactose Saccharose
Lactose Xylose Hexose
Maltose Pentose Mannose
Ribose Ribulose Sorbose
Raffinose Saccharides
Arabinose Disaccharides
Trioses Hyperglycemia
Mannitol Glycoproteins
Sorbitol Glycolysis
38

CELLULOSE
Cellophane Rayon
Nitrocellulose
9

CARBOHYDRATES
Glycosides Polysaccharides
Zymosan Mucopolysaccharides
Cellobiose
18

HETEROCYCLICS
73

ORGANIC COMPOUNDS
70

ORGANIC SULFUR COMPOUNDS
Thiazoles Chlorothiazide AET
Thioctic Acid Cystamine BAL
Thiocyanic Acid Cystine DEDTC
Thiocyanides Dithizone MEA
Thiols Sulfhydril Radicals MEG
Thionine Sulfoxides TTA
Thiopental Sulfones Mercaptopropylamine *MPA*
Thiouracil Mercaptan Methionine
Thiourea Xanthates Phenothiazines
Thiophene Penicillamine Saccharin
Unithiol Thio-TEPA *Rhodanates*
66

Carbitol
Dioxane Trioxane
ETHERS
Polyethers
22

ORGANIC OXYGEN COMPOUNDS
27

Chloral
Glyoxal
Furfural
Pyridoxal
Benzaldehyde
Formaldehyde
Acetaldehyde
ALDEHYDES
14

ALCOHOLS
Alcoholates
Glycerin
Glycols
Thiols
Pentanol
Hexanol
Octanol
Decanol
Erythritol
Inositol
Pinacol
Sterols
PVA
41

METHANOL
13

ETHANOL
15

PROPANOL
BAL
5

BUTANOL
4

Thymol
Cresol
Naphthol
PHENOLS
Pyrocatechol
Resorcinol DNP
Pyrogallol Amidol
Tannic Acid BAMBP
Picric Acid Polyphenols
20

Pentanedione
Acetylacetone
ACETONE
TTA
17

KETONES
Acetophenones
Benzophenone
Pyruvic Acid
Ketoacids
Camphor
Enols
PAPP
25

Clathrates
QUINONES
Anthraquinone
Benzoquinone
Quinhydrone
Chloranil
7

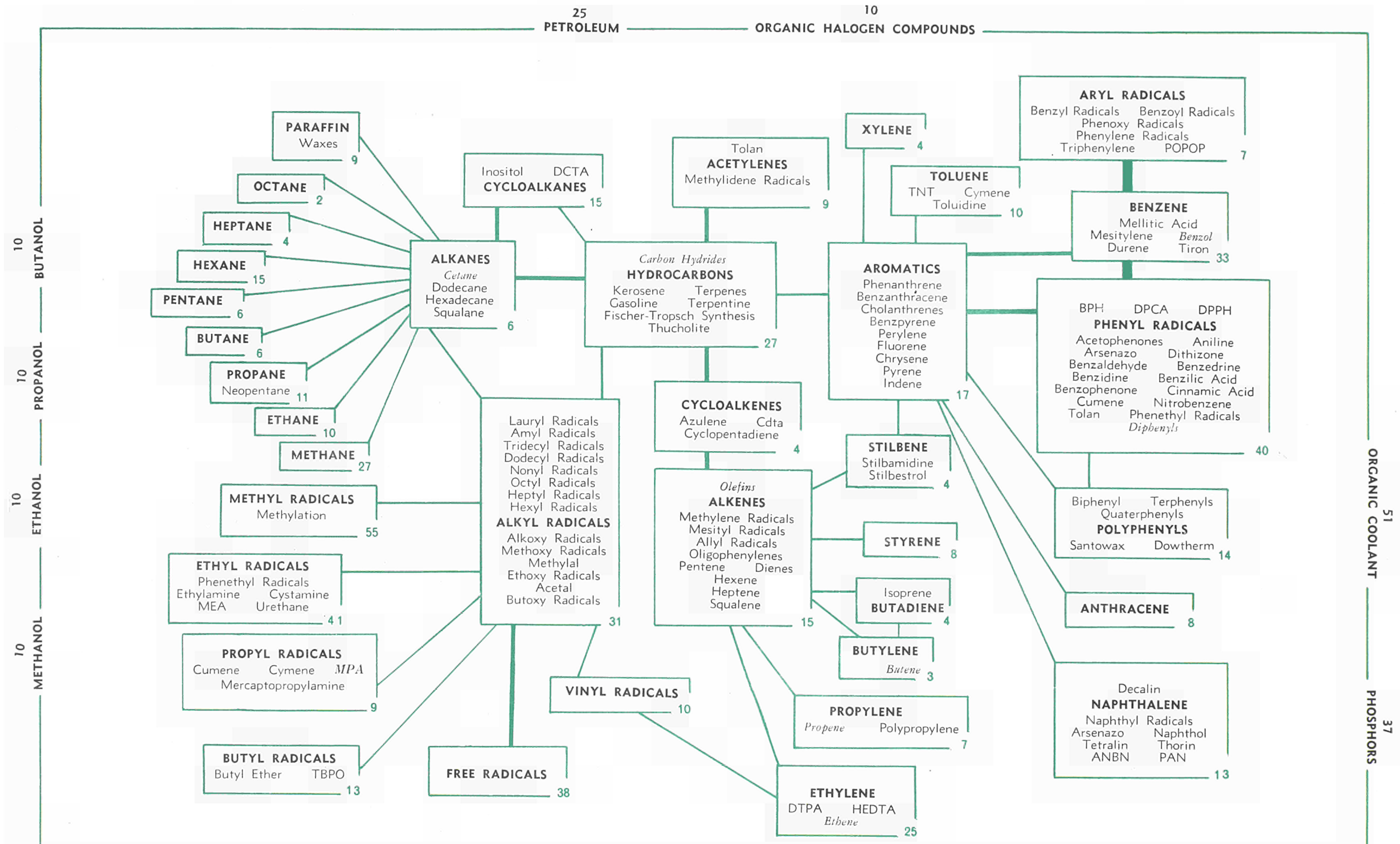
ORGANOMETALLICS
Grignard Reagents
10

CHOLESTEROL
8

ORGANIC PHOSPHORUS COMPOUNDS
Phospolipids DAMPA TCP
Phosphatides DEPHA TPO
Phosphocreatine Phytic Acid *DPNH* MDPA
Cephalins Lecithins Malathion TOPO
35

Androgens Bile Acids
Estrogens Cholic Acid
Pregnenolone Ketosteroids
Progesterone *Corticoids*
Aldosterone Corticosteroids
STEROIDS
Ergosterol
Sitosterol
Strophantin Sterols
Digitoxin Ouabain
24

ORGANIC ACIDS 12 — AROMATICS 11 — ORGANIC NITROGEN COMPOUNDS 13


25
PETROLEUM
10
ORGANIC HALOGEN COMPOUNDS
10
BUTANOL
10
PROPANOL
10
ETHANOL
10
METHANOL
PARAFFIN
Waxes
9
OCTANE
2
HEPTANE
4
HEXANE
15
PENTANE
6
BUTANE
6
PROPANE
Neopentane
11
ETHANE
10
METHANE
27
ALKANES
Cetane
Dodecane
Hexadecane
Squalane
6
Inositol DCTA
CYCLOALKANES
15
Tolan
ACETYLENES
Methylidene Radicals
9
Carbon Hydrides
HYDROCARBONS
Kerosene Terpenes
Gasoline Terpentine
Fischer-Tropsch Synthesis
Thucholite
27
XYLENE
4
TOLUENE
TNT Cymene
Toluidine
10
ARYL RADICALS
Benzyl Radicals Benzoyl Radicals
Phenoxy Radicals
Phenylene Radicals
Triphenylene POPOP
7
BENZENE
Mellitic Acid
Mesitylene Benzol
Durene Tiron
33
AROMATICS
Phenanthrene
Benzanthracene
Cholanthrenes
Benzpyrene
Perylene
Fluorene
Chrysene
Pyrene
Indene
17
BPH DPCA DPPH
PHENYL RADICALS
Acetophenones Aniline
Arsenazo Dithizone
Benzaldehyde Benzedrine
Benzidine Benzilic Acid
Benzophenone Cinnamic Acid
Cumene Nitrobenzene
Tolan Phenethyl Radicals
Diphenyls
40
Lauryl Radicals
Amyl Radicals
Tridecyl Radicals
Dodecyl Radicals
Nonyl Radicals
Octyl Radicals
Heptyl Radicals
Hexyl Radicals
ALKYL RADICALS
Alkoxy Radicals
Methoxy Radicals
Methylal
Ethoxy Radicals
Acetal
Butoxy Radicals
31
CYCLOALKENES
Azulene Cdta
Cyclopentadiene
4
STILBENE
Stilbamidine
Stilbestrol
4
Olefins
ALKENES
Methylene Radicals
Mesityl Radicals
Allyl Radicals
Oligophenylenes
Pentene Dienes
Hexene
Heptene
Squalene
15
STYRENE
8
Isoprene
BUTADIENE
4
BUTYLENE
Butene
3
Biphenyl Terphenyls
Quaterphenyls
POLYPHENYLS
Santowax Dowtherm
14
ANTHRACENE
8
Decalin
NAPHTHALENE
Naphthyl Radicals
Arsenazo Naphthol
Tetralin Thorin
ANBN PAN
13
METHYL RADICALS
Methylation
55
ETHYL RADICALS
Phenethyl Radicals
Ethylamine Cystamine
MEA Urethane
41
PROPYL RADICALS
Cumene Cymene MPA
Mercaptopropylamine
9
BUTYL RADICALS
Butyl Ether TBPO
13
VINYL RADICALS
10
FREE RADICALS
38
PROPYLENE
Propene Polypropylene
7
ETHYLENE
DTPA HEDTA
Ethene
25
51
ORGANIC COOLANT
37
PHOSPHORS
BUTYL PHOSPHATES
12
POLYMERIZATION
17
POLYVINYLS
10
POLYETHYLENES
10
POLYSTYRENE
10

15 COMPLEXES

15 CHELATES

15 PHOSPHATES

25 PLASTICS

10 POLYMERS

13 SULFONAMIDES

07 DRUGS

17 FLUORINATION

17 CHLORINATION

10 POLYESTERS

ACETATES
Acetoacetates
Oxyacetates
24

PAPP
PROPIONIC ACID
4

METHACRYLIC ACID
Methacrylates
Plexiglas Lucite
Perspex
9

OXALATES
14

OXALIC ACID
7

SUCCINIC ACID
4

SULFONIC ACIDS
Sulfonation Arsenazo
Sulfonates Taurine
Sulfamic Acid Thorin
Sulfanilic Acid Tiron
Bromosulfophthalein
13

SALICYLIC ACID
PAS
4

ACRYLIC ACID
Acrylamide
Acrolein
Cinnamic Acid
10

Versene
Sequestrene
EDTA
16

HEDTA
NTA DCTA
DTPA CDTA
Acetamide
Acetylation
Acetoacetic Acid
ACETIC ACID
Acetaldehyde
Acetyl Radicals
Pivalic Acid
34

FORMIC ACID
Formaldehyde
Formamide
14

BENZOIC ACID
Benzoyl Radicals
Anthranilic Acid
Gallic Acid
9

PHOSPHORIC ACID
15

NITRIC ACID
Niflex Process
Aqua Regia
Denitration
51

SULFURIC ACID
34

CITRIC ACID
11

Carboxylic Acids Rhodizonic Acid

ORGANIC ACIDS

Fatty Acids
Butyric Acid
Valeric Acid
Caproic Acid
Caprylic Acid
Lauric Acid
Palmitic Acid
Stearic Acid
Oleic Acid
Linoleic Acid
Linolenic Acid
Arachidonic Acid

Polyacids
Sebacic Acid
Fumaric Acid
Glutaric Acid
Itaconic Acid
Maleic Acid
Malic Acid
Malonic Acid
Tartaric Acid

Ketoacids
Pyruvic Acid

Oxyacids
Auxins
Adipic Acid
Glyceric Acid
Glycolic Acid
Glyoxylic Acid
Lactic Acid
Mevalonic Acid
Acyl Radicals
Benzilic Acid
Mandelic Acid

Orotic Acid
Uric Acid
Picolinic Acid
Gibberellic Acid
Carminic Acid
Bile Acids
Thiotic Acid
Alginic Acid
Humic Acid
Hyaluronic Acid
Gluconic Acid
Glucuronic Acid

76

PHTHALIC ACID
Bromosulfophthalein
Terephthalic Acid
Phthalates
4

MINERAL ACIDS
Bromic Acid
Chloric Acid
Chlorous Acid
Hydrocyanic Acid
Hypochloric Acid
Hypochlorous Acid
Hypophosphorous Acid
Iodic Acid
Nitrous Acid
Phosphorous Acid
Sulfurous Acid
Telluric Acid
21

ACIDS
Peracids
27

PERCHLORIC ACID
17

Hydrogen Bromides
HYDROBROMIC ACID
3

Hydrogen Iodides
HYDROIODIC ACID
1

Hydrogen Fluorides
HYDROFLUORIC ACID
Niflex Process
20

Hydrogen Chlorides
HYDROCHLORIC ACID
Aqua Regia
43

ACIDITY
Bases
Buffers
87

BUTYL PHOSPHATES
DBP TBP
Tributyl Phosphate
19

ESTERS
Lactones Esterases
Olive Oil Peanut Oil
Corn Oil Soybean Oil
Triolein
28

Cephalins **LIPIDS**
Choline Fats Lipases
Chylomicrons Lipoproteins
Triglycerides Phospholipids
Lecithins Glycolipids
Phosphatides Myelin
26

AMINO ACIDS 13

AROMATICS 11

NUCLEIC ACIDS 13

ORGANIC PHOSPHORUS COMPOUNDS 10

PROTEINS 13

10 ORGANIC OXYGEN COMPOUNDS

10 ORGANIC SULFUR COMPOUNDS

15 NITRATES

15 COMPLEXES

10 HETEROCYCLICS

07 DRUGS

08 GENETICS

07 IMMUNITY

12 SULFONIC ACIDS

04 URINE

12 ESTERS

PYRIDINES
Pyridyl Radicals
Piperidines
Picolinic Acid
Picolines
Pyridoxal
Acridine
PAN *PAR*
12

ALKALOIDS
Atropine Colchicine
Betaine Cinchonine
Codeine Ephedrine
Cocaine Ergotamine
Heroin Lysergic Acid
Eserine Pilocarpine
Morphine Strychnine
Quinine Nicotine
Reserpine Thebaine
8

Thymidilic Acid
Adenylic Acid
NUCLEOTIDES
ADP Uridylic Acid
ATP Cytidylic Acid
Luciferin Guanylic Acid
15

DNA
29

NUCLEIC ACIDS
71

RIBONUCLEIC ACID
29

Thymidine
Adenosine
NUCLEOSIDES
Uridine Ribosides
Cytidine Guanosine
Inosine Xanthosine
29

Lysozyme **GLOBULINS**
Ceruloplasmin Globulins-Alpha
Thyroglobulin Globulins-Beta
Haptoglobins Globulins-Gamma
10

Ovalbumin **ALBUMINS**
17

CYANATES
4

CYANIDES
Thiocyanic Acid Nitriles
Thiocyanides Ferrocyanides
Rhodanides Hydrocyanic Acid
27

ORGANIC NITROGEN COMPOUNDS
Alloxan Azoles
Oxazoles Orotic Acid
Cyanurates Pyrazoles
Melamine Pyrazoline
Piperazine Pyrroles
Pyrazines Pyrrolidones
Pyrimidines Pyrrolidines
Barbituric Acid Thiazoles
Cytosine Tetrazoles
Uracils Imidazoles
Thiamine Azines
Phenothiazines Imides

Chlorpromazine Imines
Quinoline Hydrazides
Promazine Hydrazones
Flavins Carbazides
Indoles Semicarbazides
Tryptamines Carbazones
Carbazoles Oximes
Kynureic Acid Nitrogen Mustard

Purines
Adenine Guanine
Uric Acid Hypoxanthine
Caffeine Xanthines
Theophylline
111

Proteolysis
PROTEINS
Nucleoproteins
Glycoproteins
Lipoproteins
Mucoproteins
Casein Actin
Collagen Fibrin
Fibrinogen Globin
Gluten Histones
Myosin Myoglobin
Pepsin Keratin
Salmine Properdin
Peptone Peptides
Protamines
72

AMMONIUM COMPOUNDS
42

AMMONIA
Ammines
Ammonolysis
Kjeldahl method
25

HYDRAZINE
Hydrazides
Hydrazones
7

AMINES
Hydroxylamine
Taurine
Urotropin
Cupferron
Cystamine
Aniline
Anthranilic Acid
Toluidine
Rhodamine
Benzidine
Benzedrine
Tyramine
PAPP HEDTA
MEA DTPA
68

AMINO ACIDS
Arginine Hippuric Acid
Alanine Glutamic Acid
Aminopterin Aspartic Acid
Glutathion Aminobutyric Acid
Glycine Aminoadipic Acid
Cystine Trioxyglutaric Acid
Asparagine Homocysteine
Citrulline Methionine
Ethionine Ornithine
Glutamine Phenylalanine
Creatine Thyronine
Histidine Tryptophan
Kynurenine DOPA Tyrosine
Leucine Lysine Proline
Sarcosine Serine Valine
69

SULFONAMIDES
Chloramine
1

AMIDES
Cyanamides
Polyamides
Acetamide
Acrylamide
Amidines
Lactams
17

UREA
Thiourea
Guanidine
10

CARBAMATES
DEDTC DPCA
4

CYSTEINE
9

BLOOD PLASMA 05

EGGS 03

ENZYMES 01

LIPIDS 12

ORGANIC ACIDS 12

51 LIQUID METAL COOLANT

51 LIQUID METAL FUEL

26 ALLOYS

26 E. ALLOYS

20 TRITIUM

20 DEUTERIUM

LIQUID METALS 47

ALKALI METALS 29

ALKALINE EARTH METALS 8

METALS
Noble Metals
Malter Effect
Overhauser Effect
Pines-Bohm Theory
Wagner Theory
Wigner-Seitz Method
143

TRANSITION METALS 9

RARE EARTHS
Aeschynite
Euxenite
Fergusonite
Loparite
Pyrochlore
Samarskite
66

ACTINIDES
Transuranium Elements
Transplutonium Elements
11

Semi-Metals
ELEMENTS
Nonmetals
Periodic System
32

Metalloids 1

HALOGENS
Halogenation 7

RARE GASES
Noble Gases Clathrates
Ramsauer Effect
14

HYDROGEN
Hydrogen-Ortho
Hydrogen-Para
Balmer Lines
Lyman Lines
Lamb Shift
Wigner-Wilkins Model
195

GASES 24

INERT GASES 24

CESIUM 34 · FRANCIUM 1 · LITHIUM 32 · POTASSIUM 35 · RUBIDIUM 10 · SODIUM 64

BARIUM 12 · BERYLLIUM Beryllon 67 · CALCIUM 37 · MAGNESIUM Ames Process 35 · RADIUM 29 · STRONTIUM 22

ALUMINUM SAP Thermite Process 120 · ANTIMONY 12 · GALLIUM 7 · INDIUM 16 · LEAD 62

BISMUTH 22 · GERMANIUM 21 · THALLIUM 19 · TIN 24

ZIRCONIUM Zirconium-Alpha Zirconium-Beta Zirconium Sponge 69 · CADMIUM Cadmium Ratio 28 · NIOBIUM *Columbium* 45 · TECHNETIUM *Masurium* 3 · RUTHENIUM 10

MOLYBDENUM 49 · PALLADIUM 9 · RHODIUM 6 · SILVER 38 · YTTRIUM 15

IRON Armco Iron Cast Iron Iron-Alpha Iron-Gamma Iron-Delta 91 · MANGANESE Manganese-Alpha Manganese-Beta 24 · SCANDIUM 8 · COBALT 26 · TITANIUM Titanium Sponge Titanium-Alpha Titanium-Beta 44

CHROMIUM 30 · ZINC 27 · VANADIUM 22 · COPPER 82 · NICKEL 56

GOLD 31 · HAFNIUM 15 · IRIDIUM 5 · OSMIUM 3 · RHENIUM 10 · TUNGSTEN *Wolfram* 51

MERCURY 36 · PLATINUM 23 · LUTETIUM 4 · TANTALUM 38

CERIUM 22 · DYSPROSIUM 8 · ERBIUM 7 · EUROPIUM 11 · GADOLINIUM 11 · HOLMIUM 5 · LANTHANUM 14

NEODYMIUM 11 · PRASEODYMIUM 8 · PROMETHIUM 3 · SAMARIUM 11 · TERBIUM 5 · THULIUM 4 · YTTERBIUM 6

URANIUM Natural Uranium Depleted Uranium Uranium-Alpha Uranium-Beta Uranium-Gamma Tuballoy 183 · PLUTONIUM Plutonium-Alpha Plutonium-Beta Plutonium-Gamma Plutonium-Delta Plutonium-Epsilon Plutonium-Eta 67 · THORIUM Thorium-Alpha Thorium-Beta 53 · NEPTUNIUM Neptunium-Alpha Neptunium-Beta Neptunium-Gamma 5 · CURIUM 3 · MENDELEVIUM 1

FERMIUM 1 · PROTACTINIUM 5

AMERICIUM 6 · NOBELIUM 1 · LAWRENCIUM 1

BERKELIUM 1 · CALIFORNIUM 2 · ACTINIUM 2 · EINSTEINIUM 1 · ELEMENT 104 1

Activated Carbon CARBON Carbonization Carbon Black Pyrolytic Carbon Carbon Arcs Soot 87 · SILICON 44 · ARSENIC 8 · PHOSPHORUS 18 · Ozone OXYGEN Anoxia Hypoxia 139

TELLURIUM 7 · BORON 31 · POLONIUM 10

NITROGEN Kjeldahl Method 77 · SULFUR 17 · SELENIUM 6

CHLORINE 17 · FLUORINE 18 · BROMINE 11 · ASTATINE 1 · IODINE Iodination Iodometry 24

ARGON 62 · HELIUM 84 · KRYPTON 15 · NEON 21 · XENON 24 · RADON *Emanation* 12

15 E. COMPOUNDS

15 HALIDES

23 MINERALS

47 ANIONS

12 EDTA

17 CHEMICALS

10 ORGANIC PHOSPHORUS COMPOUNDS

18 SALTS

10 ORGANIC HALOGEN COMPOUNDS

26 CERAMICS

URANIUM SILICIDES 1

SILICIDES 22

SILICATES Amphiboles Feldspars Pyroxenes 12

PHOSPHATES Pyrophosphates Superphosphates 36

PHOSPHIDES 2

E. SILICATES 35

E. PHOSPHATES 50

Phosgene CHLORIDES Oxychlorides 36

E. CHLORIDES 117

BROMIDES Oxybromides 7

E. BROMIDES 24

E. IODIDES 31

HALIDES Oxyhalides 19

IODIDES 11

E. FLUORIDES 115

FLUORIDES Oxyfluorides 30

URANIUM HEXAFLUORIDE 11

URANIUM TETRAFLUORIDE 12

TELLURIDES Chalcogenides 6

SELENIDES Chalcogenides 5

Stereochemistry COMPOUNDS *Inorganic Compounds* 28

E. COMPOUNDS *E. Ions* *E. Anions* *E. Cations* 310

E. NITRIDES 22

NITRIDES Azides 8

E. NITRATES 69

NITRATES Nitro Compounds Nitrocellulose Picric Acid TNT DNP 25

E. SULFIDES 43

SULFIDES Oxysulfides Chalcogenides 10

Chelating agents CHELATES NTA CDTA BAL DCTA DTPA HEDTA 20

E. SULFATES 61

SULFATES Persulfates Pyrosulfates Thiosulfates 31

COMPLEXES Coordination Number Complexometry Ligands Ammines 47

E. COMPLEXES 11

E. HYDRIDES 68

E. BORIDES 17

E. CARBIDES 80

E. CARBONATES 33

E. OXIDES 463

E. HYDROXIDES 60

HYDROXIDES Hydroxyl Ions Hydroxylamine Hydroxyproline Alkalis 41

HYDROGEN PEROXIDES 18

CARBONYLS Phosgene 6

CARBON MONOXIDE 16

HYDRIDES 9

TBPO PHOSPHINES 3

SILANES 3

BOROHYDRIDES 2

BORIDES 8

BORATES Ascharite Borax 8

CARBIDES Oxycarbides Carburization Decarburization 22

CARBONATES Polycarbonates Carbonatites 16

OXIDES Anhydrides Peroxides Spinels Chalcogenides 65

CARBON DIOXIDE 52

URANATES Uranic Acid ADU 6

URANIUM TRIOXIDE 8

URANYL COMPOUNDS 29

U_3O_8 11

URANIUM DIOXIDE 77

URANYL NITRATES 17

E stands for any of the 104 known element names

See also **E.** (chart 14) and **E. ISOTOPES** (chart 20) and **E. ALLOYS** (chart 26)

ORGANIC NITROGEN COMPOUNDS 13

ORGANIC SULFUR COMPOUNDS 10

ALUMINUM FLUORIDES Cryolite
ALUMINUM HYDROXIDES Boehmite
ALUMINUM OXIDES *Alumina* Alundum Bauxites Corundum Ruby Sapphire
ALUMINUM SILICATES Albite Bentonite Beryl Biotite Garnets Glauconite Hornblende Kaolinite Microcline Mullite Muscovite Montmorillonite Orthite Orthoclase Plagioclase Pollucite Spodumene Tourmaline Topase Vermiculite
ALUMINUM SULFATES Alum
ARSENIC COMPOUNDS Arsenides Arsonic Acid Thorin
ARSENIC OXIDES Zeunerite
BARIUM SULFATES Barite
BERYLLIUM COMPOUNDS Berylliosis
BERYLLIUM OXIDES Chrysoberyl
BERYLLIUM SILICATES Beryl Gadolinite
BORON CARBIDES Boral
BORON HYDRIDES Boranes Borazoles
BORON OXIDES Boric Acid
BORON SILICATES Tourmaline
BROMINE COMPOUNDS Bromic Acid
CALCIUM CARBONATES Aragonite Calcite Chalk Corals Dolomite Limestone Calcification
CALCIUM FLUORIDES Fluorite
CALCIUM OXIDES Lime Perovskite Tyuyamunite Scheelite
CALCIUM PHOSPHATES Apatites Phosphorite Phosphuranylite
CALCIUM SILICATES Hornblende Orthite Plagioclase Uranophane
CALCIUM SULFATES Anhydrite Gypsum
CERIUM CARBONATES Bastnaesite
CERIUM SILICATES Orthite
CESIUM SILICATES Pollucite
CHLORINE COMPOUNDS Chloric Acid Chlorous Acid Hypochloric Acid Hypochlorous Acid
CHROMIUM OXIDES Chromite
COPPER CARBONATES Azurite Malachite
COPPER OXIDES Cuprite Zeunerite
COPPER PHOSPHATES Torbernite
COPPER SULFIDES Bornite Chalcocite Chalcopyrite Covellite
GADOLINIUM COMPOUNDS Gadolinite
IODINE COMPOUNDS Iodic Acid Periodates Periodic Acid
IRON CARBIDES Cementite Pearlite
IRON CARBONATES Siderite
IRON COMPLEXES Ferrocene Ferroin
IRON COMPOUNDS Ferrocyanides
IRON HYDROXIDES Goethite Limonite
IRON OXIDES Chromite Hematite Ilmenite Magnetite Wuestite Wolframite
IRON SILICATES Olivine
IRON SULFATES Mohr Salt
IRON SULFIDES Bornite Marcasite Chalcopyrite Pyrite Pyrrhotite Troilite
LEAD OXIDES Litharge
LEAD SILICATES Kasolite
LEAD SULFIDES Galena
MAGNESIUM CARBONATES Dolomite Magnesite
MAGNESIUM CHLORIDES Carnallite
MAGNESIUM COMPOUNDS Grignard Reagents
MAGNESIUM SILICATES Biotite Enstatite Forsterite Olivine Serpentine Phlogopite Talc
MANGANESE OXIDES Manganite Pyrolusite Permanganates
MERCURY CHLORIDES Calomel
MERCURY COMPOUNDS Amalgams
MOLYBDENUM OXIDES Molybdenum Blue
MOLYBDENUM PHOSPHATES AMP Process
MOLYBDENUM SULFIDES Molybdenite
NIOBIUM OXIDES Aeschynite Euxenite Fergusonite Loparite Niobite Pyrochlore Samarskite Tantalite
NITROGEN COMPOUNDS Nitrous Acid
NITROGEN OXIDES Nitroso Radicals Nitrosyl Radicals
OXYGEN COMPOUNDS Pyrans
PHOSPHORUS COMPOUNDS Phosphorous Acid Hypophosphorous Acid
PHOSPHORUS OXIDES Phosphoryl Radicals Phosphorylase Phosphorylation
PLUTONIUM COMPOUNDS Plutonyl Compounds
POTASSIUM CHLORIDES Carnallite Sylvite
POTASSIUM SILICATES Biotite Microcline Orthoclase Muscovite
POTASSIUM SULFATES Alum
RHENIUM OXIDES Perrhenates
SILICON CARBIDES Carborundum
SILICON COMPOUNDS Silyl Radicals
SILICON FLUORIDES Fluosilicic Acid
SILICON OXIDES Cristobalite Fused Silica Silicic Acid
SODIUM CHLORIDES Halite
SODIUM COMPOUNDS Borax Hippuran
SODIUM FLUORIDES Cryolite
SODIUM SILICATES Albite Plagioclase
SULFUR COMPOUNDS Sulfurous Acid
TANTALUM OXIDES Aeschynite Euxenite Fergusonite Niobite Pyrochlore Samarskite Tantalite
TECHNETIUM OXIDES Pertechnetates
TELLURIUM COMPOUNDS Telluric Acid Tellurous Acid
THORIUM OXIDES Aeschynite Euxenite Thorianite Thorotrast Uranothorianite
THORIUM SILICATES Huttonite Thorite Uranothorite
TIN OXIDES Cassiterite
TITANIUM OXIDES Aeschynite Anatase Brannerite Davidite Ilmenite Loparite Perovskite Pyrochlore Rutile Brookite
URANIUM CARBONATES Rutherfordite
URANIUM COMPOUNDS Thucholite
URANIUM OXIDES Becquerelite Billietite Peruranates Gummite Samarskite Thorianite Tyuyamunite Zeunerite
URANIUM PHOSPHATES Autunite Torbernite Phosphuranylite
URANIUM SILICATES Coffinite Kasolite Uranothorite Uranophane
URANIUM SULFATES Schroeckingerite Uranopilite
VANADIUM COMPOUNDS Vanadyl Compounds
VANADIUM HYDROXIDES Montroseite
VANADIUM OXIDES Carnotite Tyuyamunite
XENON OXIDES Perxenates
YTTRIUM OXIDES Gadolinite
YTTRIUM PHOSPHATES Xenotime
ZINC SULFIDES Sphalerite Wurtzite
ZIRCONIUM COMPOUNDS Zirconyl Compounds
ZIRCONIUM FLUORIDES Fluozirconates
ZIRCONIUM OXIDES Baddeleyite
ZIRCONIUM SILICATES Zircon

CORROSION PROTECTION
Anticorrosion Passivation
17

CORROSION
Intercrystalline Corrosion
Intergranular Corrosion
Pitting Corrosion
Sealing
101

FUSED SALTS
Molten Salts
30

Desalination
SALTS Brines
Beer Law
52

POLAROGRAPHY
Faraday Current
Ilkovic Equation
13

ELECTROCHEMISTRY
Nernst Equation
Passivity
17

ELECTROLYTES
Debye-Hueckel Theory
Debye-Hueckel Law
Ionic Strength
Donnan Theory
Wien Effect
22

ELECTRODEPOSITION
Electroplating
10

ELECTROLYSIS
Faraday Laws
Electropolishing
Electrorefining
28

ELECTROLYTIC CELLS
Voltametry
12

ELECTROPHORESIS
Transfer Numbers
Electromigration
Cataphoresis Ionophoresis
Drag Effect *Drag*
14

BATTERIES
Accumulators
Fuel Cells
10

10 RESINS

18 POLAROGRAPHY

20 ACTIVATION ANALYSIS

34 COUNTER CURRENT

37 SPECTROMETERS

38 PHOTOMETRY

35 TEMPERATURE

38 PHOTOCHEMISTRY

25 SOLVENTS

20 WASTE PROCESSING

Stirring
Blending
Mixtures
Binary Mixtures
MIXING
Mixer-Settlers
128

ION EXCHANGE MATERIALS
Amberlite Zeolites
Clinoptilolite *Decalso*
Montmorillonite Dowex
Vermiculite Mullite
Bentonite Permutit
34

TRACE AMOUNTS
Microanalysis
56

Carrier-Free
IMPURITIES
Inclusions
Acceptors
Divertors
174

Amex Process
Butex Process
Dapex Process
Redox Process
Tramex Process
Slurrex Process
SOLVENT EXTRACTION
76

Exchange
Demineralization
ION EXCHANGE
61

Assaying
Chemical Composition
CHEMICAL ANALYSIS
Stoichiometry Gas Analysis
Spectrochemistry Microanalysis
Gutzeit Method Masking Agents
Interfering Elements
155

DETERMINATION
Colorimetry Gravimetry
Potentiometry Titration
Voltametry
3

Pulse Columns
EXTRACTION COLUMNS
Cascades *Towers*
Soxhlets
18

Filtration
SEPARATION PROCESSES
Elution Elutriation Decantation
Freezing Out AMP Process
Separation Factor
Entrainment
165

CHROMATOGRAPHY
Radiochromatography
51

PYROLYSIS
Thermolysis
Calcination
Cracking
19

LEACHING
Lyometallurgy
Dissolution
24

DECOMPOSITION
Solvolysis Autolysis
Dissociation Cracking
Predissociation Glycolysis
Depolymerization Acetolysis
Recombiner Ammonolysis
Cannizzaro Reaction
133

PHOTOLYSIS
4

HYDROLYSIS
Saponification
Proteolysis
Hydrolases
Esterases
28

Concentrates
Depletion
Concentration
ENRICHMENT
Paducah Plant
Flotation
61

PRECIPITATION
Flocculation Fouling
Rala Process Salting-Out Agents
94

REPROCESSING 20

ORE PROCESSING 23

COAGULATION 05

WATER 24

24 SLURRIES — 19 LEACHING — 19 SOLVENT EXTRACTION — 09 FALLOUT — 38 PHOTOCHEMISTRY — 46 RADIATION EFFECTS

24 SOLUTIONS — 19 SEPARATION PROCESSES — 41 CARRIERS

17 CHEMICAL ANALYSIS — 41 CARRIERS — 01 RADIOBIOLOGY

WASTE SOLUTIONS
Wastes
22

WASTE DISPOSAL
Underground disposal
34

FISSION PRODUCTS
Fissium
123

WASTE PROCESSING
18

RADIOLYSIS
31

Radioinduced Reactions
RADIATION CHEMISTRY
G-Value
85

Halex Process
Darex Process
Purex Process
REPROCESSING
Excer Process — Recycling
Fluorox Process — Eurochemic
Flurex Process — Thorex Process
Hermex Process — Zircex Process
Niflex Process — Zirflex Process
Sulfex Process — Sol-Gel Process
42

RADIOCHEMISTRY
Szilard-Chalmers Reaction
Emanation Method — Hot Lab
54

ACTIVATION ANALYSIS
42

TRACER TECHNIQUES
187

Radioactive Materials
RADIOISOTOPES
Carrier-Free
138

Radioactive Materials
LABELLED COMPOUNDS
Wilzbach Method
180

ISOTOPE SEPARATION
Calutron — Dual Temperature
Cow-Milkers
37

Nuclides
ISOTOPES
Stable Isotopes
Isotope Dilution
Isotopic Shift
51

ISOMERS
Glucose-D
Alanine-L
Deuterium-Para
Hydrogen-Ortho
Iso

Tautomerization
Isomeric Transition
Enols
52

ISOTOPIC EXCHANGE
28

ISOTOPE EFFECTS
25

Any combination of an element name and a mass number is a Keyword

E. ISOTOPES
1443

DEUTERIUM
60

TRITIUM
65

TRITIUM COMPOUNDS
11

DEUTERIUM COMPOUDS
25

HYDROGEN COMPOUNDS 15 — HYDRIDES 15 — HEAVY WATER 51

ARCTIC REGIONS

ARCTIC REGIONS

Greenland
USE ARCTIC REGIONS

Alaska
USE USA

(Country Names)
USE
NORTH AMERICA

UNITED NATIONS

(State Names)
USE USA

(Country Names)
USE CENTRAL AMERICA

(Country Names)
USE EUROPE

IAEA

Black Sea
USE SEA

EURATOM

Mediterra-
nean Sea
USE SEA

(Country Names)
USE AFRICA

(Country Names)
USE ASIA

Equator

USE EARTH + ZONES

(Country Names)
USE SOUTH
AMERICA

Pacific Ocean
USE SEA

Indian Ocean
USE SEA

AUSTRALIA

Geographical names must be used if the localization of a phenomenon is of major importance.
Geographical names must **not** be used to indicate conference sites.

Antarctica USE
ARCTIC
REGIONS

23 SOILS — 23 DEPOSITS — 28 LAYERS — 43 PLANETS — 09 METEOROLOGY — 43 RADIATION BELTS

23 MINERALS

57 TESTING

45 ACTIVATION

39 MAGNETISM

27 IMPACT SHOCK

46 WAVE PROPAGATION

GEOCHEMISTRY 9

Geography Mountains
Topography Sima
EARTH Sial
Geodesy Earth Crust
Equator Mohorovicic Discontinuity
Latitude Effect
53

International Geophysical Year
GEOPHYSICS
Geomagnetism
Geomagnetic Equator
Geomagnetic Coordinates
Geomagnetic Storms
18

AGE ESTIMATION
Archaeology
Fossils
Paleontology
19

GEOLOGY
Stratification
Stratigraphy
Tectonics
28

SEISMOLOGY
Earthquakes
8

Exploration
PROSPECTING
Aerial Surveying
10

Extraction
MINING
9

Detonations
EXPLOSIONS
Bursts *Blast*
Underwater Explosions
20

Blast
SHOCK WAVES
Detonation Waves
Shock Tubes
Hugoniot Curve
41

Rock Drilling
WELL LOGGING
Boreholes
7

UNDERGROUND EXPLOSIONS
Project Cowboy
Project Shoal
Project Teapot
Project Carryall
Project Plowshare
Project Lollipop
Project Plumbbob
Project Danny Boy
Project Sedon
Project Schooner
11

EXPLOSIVES
Dynamite
TNT
5

ORE PROCESSING 23 — NUCLEAR EXPLOSIONS 45

26 BUILDING MATERIALS — 15 ALUMINUM OXIDES — 02 AGRICULTURE — 22 GEOCHEMISTRY — 23 GEOLOGY — 23 EARTH

15 SILICON OXIDES

14 CARBON

24 CRYSTALS

43 METEORITES

14 RARE EARTHS

15 THORIUM COMPOUNDS

22 MINING

Clinoptilolite
CLAYS
Fuller Earth
Loam Kaolin
Illite
8

Ground
Mud
SOILS
Humus Diatomite
Humic Acid Laterites
34

DEPOSITS
Sediments
Placers
39

Volcanics Lava
IGNEOUS ROCKS
Basalt Andesites
Diabases Diorites
Gabbros Dunites
Pegmatites Monzonites
Peridotites Porphyrs
Rhyolites Pyroxenites
Tuff Syenites
Granodiorites
Dolerites
13

DIAMONDS
4

SAND
Sandstones
Black Sands
10

QUARTZ
Diatomite
Hornstone
Flint
Opal
19

Petrography
ROCKS
Limestone Silt
Sandstones Shales
Gneiss Schists
Conglomerates
35

Radioactive Minerals
Mineralogy Asbestos
MINERALS

Bastnaesite	Apatites	Amphiboles	Aragonite	Anatase
Carnallite	Barite	Beryl	Biotite	Bauxites
Chalcocite	Calcite	Calomel	Chalcopyrite	Cassiterite
Covellite	Corundum	Cristobalite	Cryolite	Epidote
Forsterite	Dolomite	Feldspars	Fluorite	Chromite
Goethite	Galena	Garnets	Gypsum	Glauconite
Huttonite	Hematite	Ilmenite	Kaolinite	Gadolinite
Magnesite	Lepidolite	Limonite	Magnetite	Marcasite
Malachite	Orthite	Montmorillonite	Olivine	Molybdenite
Mullite	Perovskite	Pyrite	Pyrochlore	Niobite
Pyrolusite	Pyroxenes	Rutile	Sapphire	Pollucite
Pyrrhotite	Scheelite	Siderite	Sphalerite	Serpentine
Sillimanite	Spinels	Spodumene	Tantalite	Troilite
Topase	Talc	Thorite	Tourmaline	Wurtzite
Wolframite	Vermiculite	Zeolites	Zircon	Xenotime

71

Monazites
THORIUM ORES
2

Orogenesis
ORES
Black Sands
18

URANIUM ORES
Uranium Concentrates
19

ORE PROCESSING
Crushing Flotation
Resin-in-Pulp Process
Concentrates
5

MICA
Biotite
Lepidolite
Muscovite
Phlogopite
8

GRANITES
8

URANIUM MINERALS

Autunite	Becquerelite	Brannerite
Coffinite	Carnotite	Euxenite
Fergusonite	Gummite	Kasolite
Samarskite	Schoepite	Schroeckingerite
Thucholite	Torbernite	Uranothorianite
Tyuyamunite	Uranophane	Uranopilite
Uranothorite	Curite	Zeunerite

14

URANINITES
Pitchblende
Nasturan
5

URANIUM COMPOUNDS 15 — **URANIUM DIOXIDE** 15 — **ENRICHMENT** 19

51
GAS COOLANT

14
RARE GASES

34
FLUID FLOW

51
FUEL SUSPENSIONS

51
FUEL SLURRIES

51
HEAVY WATER

29
MELTING

DEGASSING 8

INERT GASES 23

FLUIDIZATION
Fluidized Bed
8

Silica Gel
Sol-Gel Process
Gelatine
Gels Agar
Alginic Acid
Radiocolloids
COLLOIDS
Tyndall Effect
34

DISPERSIONS
Straggling
31

Turbidity Turbidimetry
SUSPENSIONS
Fluidized Bed
Two-Phase Flow
28

SLURRIES
Pulps
Mud
13

Gas Fuel
Rarefied Gases
Ideal Gas
Natural Gas
GASES
Bose-Einstein Gas
Lorentz Gas
Mayer Theory
Paschen Law
Henry Law
Langmuir Isotherm
Virial Coefficients
251

Nusselt Number
Rayleigh Number
Schmidt Number
FLUIDS
Ascites Aqueous Humor
Edema Saliva
Sweat Synovia
Cerebrospinal Fluid
43

EMULSIONS
Latex
6

Dilution
Blood Substitutes
SOLUTIONS
Freezing Point Depression
Beer Law Henry Law
Brines Cryoscopy
Nutrients Culture Media
288

Dissolution
SOLUBILITY
71

VOLATILITY 19

Transpiration Method
Mollier Diagram
Void Fraction
Raoult Law
Vapor Generators
VAPORS
80

Dew Point
Condensation
LIQUEFYING
12

Hydrostatics
LIQUIDS
Henry Law
Droplets
Void Fraction
136

Whiskers
MONOCRYSTALS
Single Crystals
Peierls-Nabarro Force
Bridgman Method
Laue Diagrams
54

Sublimation
Vaporization
EVAPORATION
Evaporation Heat
Lyophilization
Drying Desert
65

Steam Generators
STEAM
Steam Quality
54

Aqueous
WATER
Hydrates
Dehydration
323

Snow
ICE
7

MELTING POINTS
28

SOLIDS Born-Von Karman Theory
Solid-State Physics Nusselt Number
Band Theory
105

CRYSTALS
Crystallography
Excitons Cleavage
Lamb Theory Habit Plane
Pyroelectricity Ionic Crystals
Koehler-Seitz Theory
Umklapp Processes
Weissenberg Method
Wannier Function
Miller Indices
192

Azeotrope
Rectification
Fractionation
DISTILLATION
Petroleum Refineries
24

Cataracts
Limnology
HYDROLOGY
Lakes Rivers
20

GROUND WATER
7

SEA Pacific Ocean
Sea Level Atlantic Ocean
Tide Indian Ocean
Ocean Mediterranean Sea
Oceanography Black Sea
29

Sublimation
SOLIDIFICATION
Freezing
Freezing Points
15

CRYSTALLIZATION
Dendrites Epitaxy
Amorphous State
Mineralization
Nucleation
Crystal Growth
Growth
21

Color Centers F Centers **LATTICES**
Frenkel Defects M Centers *Crystal Structure*
Brillouin Zone V Centers Twinning
Interstitials Spin-Lattice Relaxation
Space Group Spin Waves Crystallography
Vegard Law Shear Waves Debye-Waller Factor
Schottky Defects Ising Model Burgers Vector
Bloch Theory Bragg Reflection Crowdions
Order-Disorder Transformation BCC
Coordination Valence
234

CRACKS 30 — DEFECTS 30 — SLIP 30

20 WASTE DISPOSAL
26 WOOD
10 CELLULOSE
10 POLYMERS
14 CARBON
15 SILICON COMPOUNDS
11 HYDROCARBONS
09 CLOTHING
28 FIBERS
33 LUBRICATION
09 CLEANING
24 SOLUBILITY
19 SOLVENT EXTRACTION
37 COLOR
17 CHEMICALS

Wigner Effect
GRAPHITE
Graphitization
Pyrolytic Graphite
Agot Graphite
74

SLAGS
5

Wastes
RESIDUES
Gangue *Ashes*
Depleted Uranium
21

PAPER
Kraft Paper
17

SILICONES
Siloxanes
Silastic
5

Fossil Fuels
COAL
Anthracite
Lignite
Coke
Peat
13

PLASTICS
Plasticizers
Reinforced Plastics
Thermoplastics
Cellophane
Plexiglas
Lucite
34

TEXTILES
Cotton
Wool Silk
6

BITUMENS
Asphalt Tar
Asphaltite
3

ELASTOMERS
Buna
4

Fossil Fuels
PETROLEUM
Mineral Oil
12

FOAMS
3

RUBBER
Latex Buna
Silastic Viton
Gutta Percha
10

Essential Oils
OILS
Sesame Oil
20

SOLVENTS
Dioxane
Trioxane
Solvesso
Amsco
40

DYES Indicators
Stains Phthalocyanines
Curcumin Eosin
Eriochrome Dyes Ink
Fluorescein Quinalizarin
Alizarin Rhodamine
26

Paints
PIGMENTS
Porphyrins
Carotenoids
Bilirubin
Melanin
Molybdenum Blue
India Ink
14

DETERGENTS
Soaps
3

52 SHIELDING MATERIALS — 23 SAND — 10 CELLULOSE — 26 ZIRCONIUM ALLOYS — 14 METALS — 27 CREEP — 17 OXIDATION — 30 AUSTENITE — CHROMIUM ALLOYS 26 — IRON ALLOYS 26 — IRON 14 — WINDOWS 28 — SINTERED MATERIALS 29 — 25 SLAGS

CEMENTS
Cementation
Binders
Fillers
8

CONCRETES
Prestressed Concrete
Reinforced Concrete
19

WOOD
Lignin
Xylose
5

ZIRCALOY
32

HEAT RESISTING METALS
Heat Resisting Alloys
Superalloys
Refractory Alloys
Alloy-L-605
Alloy-A-286
Alloy-S-816
Alloy-M-252
Alloy-N-155
13

ALLOYS
Ising Model
47

BUILDING MATERIALS
Structural Materials
Bricks
11

REFRACTORIES
Asbestos
22

CERAMICS
Raschig Rings
Porcelain
Enamels
Glazes
39

CERMETS
10

GLASS
Pyrex
Vitrification
51

Nickel Steels
Alloy Steels
STEELS
Fansteel
51

Chromium-Nickel Steels
STAINLESS STEELS
Stainless Steel-304
Stainless Steel-316
Stainless Steel-347
Carpenter Croloy
Timken Alloys
76

CARBON STEELS
10

CHROMIUM STEELS
3

28 VOLUME

28 SURFACES

29 BONDING

28 FILMS

35 THERMAL STRESSES

57 TESTING

WEIGHT Payload
Thermogravimetry
Molecular Weight
Gravimetry
Balances
Obesity
66

MASS *Isobars*
Critical Mass
Mass Renormalization
Moment of Inertia
Effective Mass
Mass Number
Mass Defect
142

ADHESION *Adherence*
Adhesives
8

Adsorbents
Activated Carbon
ADSORPTION
Langmuir Isotherm
Molecular Sieves
Wettability
Desorption
79

Darcy Law
POROSITY
Permeability
31

SURFACE TENSION
Weber Number Wetting Agents
8

Condensation
DENSITY
Grain Density
Hugoniot Curve
Rayleigh-Taylor Instability
Pycnometers Schlieren
149

MATERIALS TESTING
Nondestructive Testing
Quality Control
Charpy Test
116

S-N Diagram
Young Modulus
STRESSES
Stress Relieving Flow Stress
Peierls-Nabarro Force
Photoelasticity
71

ELASTICITY
Bordoni Peaks
25

MECHANICAL PROPERTIES
75

TENSILE PROPERTIES
Shear Torsion
Yield Strength Young Modulus
Bauschinger Effect
84

Hardening
HARDNESS
Brinell Hardness
Vickers Hardness
Strain Hardening
39

DUCTILITY
Plasticity
32

FAILURES
Fractures
Rupture
Damage *Bursts*
Fedal
71

FATIGUE
Thermal fatigue
S-N diagram
10

GAGES
Strain Gages
Bayard-Alpert Gage
17

BRITTLENESS
Embrittlement
20

DEFORMATION
Strain *Forming*
Strain Gages Extensometers
Magnetostriction Bending
Shear Waves Flow Stress
Contraction Deformed Nuclei
Bowing
87

CREEP
Plastic Flow
26

IMPACT SHOCK
Shock
Charpy Test
13

WEAR
Abrasion
Abrasives
10

FRICTION
Internal Friction
20

EROSION
6

26 HEAT RESISTING METALS

30 CRACKS

DEFECTS 30 — SHOCK WAVES 22 — CORROSION 18 — COLD WORKING 29 — HOT WORKING 29 — EXPANSION 28

27 WEIGHT

27 MASS

29 PLATING

29 ROLLING

52 SPACERS

35 THERMAL STRESSES

27 ADHESION

27 SURFACE TENSION

33 NOZZLES

52 FUEL ELEMENTS

Bubble Growth
Growth
EXPANSION
Dilatation
Grueneisen Constant
Thermal Analysis
Differential Thermal Analysis
Swelling Shrinkage
Joule Effect
95

Rossi Curve
Half-Thickness
THICKNESS
110

Strips
SHEETS
21

Vanes
Ribs *Spikes*
FINS
Finned Tubes
Baffled Tubes
Blades
10

Dimensions
Molar Volume
VOLUME
Size
77

Lamb Waves
PLATES
Disks
69

Chandrasekhar Theory
Bohm Criterion
Stratigraphy
Earth Crust
LAYERS
Substrates
76

FOILS
38

DISTANCE
Interatomic Distances
9

Shape *Dimensions*
Geometry *Structure*
Rings **CONFIGURATION**
Symmetry Asymmetry
Roughness *Sharpness*
Honeycomb Tectonics
Domain Structure
Clathrates
Morphology Isomorphism
436

FILMS
Film Boiling
Boundary Layers
Replica Techniques
72

SPHERES
Droplets
Pebble Bed
Packed Bed
44

PELLETS
22

Boundaries Interfaces
Specific Surface
SURFACES
Roughness Pickling
Surface Treatments
Descaling *Cementation*
223

Fuel Pins Fuel Rods
RODS *Spikes*
Pins Slugs
80

CYLINDERS
71

ZONES
Geomagnetic Coordinates
Zone Refining
Disadvantage factor
Bloch Wall
60

Orifices Aperture
OPENINGS
Craters Excavation
Cavities Notches
Annular Space
Caves
Gaps
8

FIBERS
Mineral Wool
Jute Cotton
Rayon
10

WIRES
Filaments
36

Channels *Ducts*
TUBES
Finned Tubes
Shock Tubes
Venturi Tubes
119

WINDOWS
13

TEXTILES 25

PIPES 33

CONFINEMENT 55

CLOSURES 33

35 HEATING

30 HEAT TREATMENTS

47 PARTICLES

26 CERMETS

24 MELTING POINTS

27 POROSITY

41 ELECTRODES

28 SHEETS

52 FUEL CANS

FURNACES
Incinerators Blast Furnaces
25

CRUCIBLES
10

MELTING
Fusion
69

CASTING
Molding
Slip Casting
Casting Molds
26

Purification
REFINING
Electrorefining
Zone Refining
Zone Melting
21

FORGING
6

EXTRUSION
Swaging
22

HOT WORKING
15

ROLLING
Flattening
19

CANNING
Cladding
Sheathing
26

COATING
Sheathing Paints
Lacquers Glazes
Enamels
63

POWDERS
Abrasives
67

POWDER METALLURGY
9

METALLURGY
Electrometallurgy
Hydrometallurgy
Lyometallurgy
Pyrometallurgy
Radiometallurgy
35

FABRICATION
123

COLD WORKING
Strain Hardening
Shot Peening
21

PLATING
Electroplating
Anodization
7

SPUTTERING
Atomization Spray
Vaporization
Spray Column
10

SINTERING
31

SAP
SINTERED MATERIALS
17

COMPACTING
Pressing Compacts
20

IMPREGNATION
Infiltration
Permeability
8

WELDING
Dry Box Welding
Flash Welding
Butt Welding
Seam Welding
Spot Welding
31

WELDS Fluxes
13

BONDING *Fixation*
26

BRAZING
9

SOLDERING
2

MACHINING
Cutting
Milling Grinding
Drilling Honing
17

DIES
Drawing
7

TOOLS
Cutting Tools
Drills
8

ELECTRODEPOSITION 28

FILMS 28

SURFACES 28

MACHINE PARTS 33

24 SOLIDS — 14 METALS — 26 ALLOYS — 41 SEMICONDUCTORS — 27 FAILURES — 24 LATTICES

26 STAINLESS STEELS

26 STEELS

27 HARDNESS

18 CORROSION

47 PARTICLES

Pearlite
EUTECTICS
18

ALLOTROPY
36

Aluminides
Beryllides
Gallides
INTERMETALLIC COMPOUNDS
Laves Phases
50

CRACKS
22

SLIP
Slip Ratio
Slip Velocity
470

Imperfections
Stacking Faults Flaws
Interstitials Inclusions
Pits Schottky Defects
Holes Frenkel Defects
DEFECTS
Vacancies Point Defects
Dislocations
90

SOLID SOLUTIONS
37

Eutectoids Phase Transformation
Peritectoids *Peritectics*
PHASE DIAGRAMS
State Diagrams
Monotectics Monotectoids
Thermal Analysis
105

METALLOGRAPHY
Microstructure
Widmanstaetten Structure
40

Intergranular Corrosion
GRAIN BOUNDARIES
Boundaries
21

AUSTENITE
Bainite
10

ETCHING
9

MARTENSITE
4

Aging
HEAT TREATMENTS
Quench-Hardening Thermal Cycling
Soaking *Normalization*
65

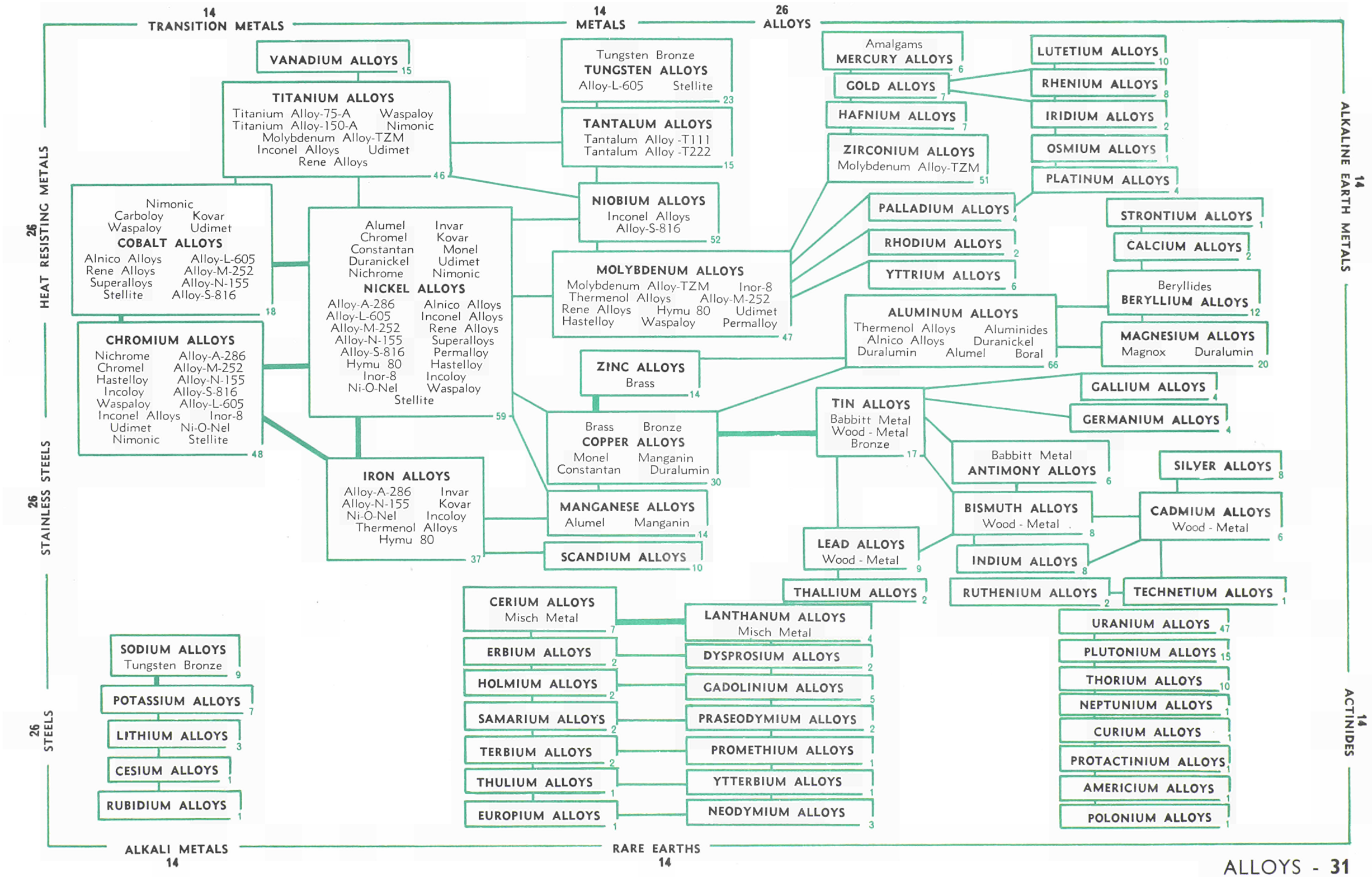
GRAIN SIZE
Size Reduction
58

TEMPERING
9

ANNEALING
Stress Relieving
54

RECRYSTALLIZATION
14

FURNACES 29 — HEATING 35 — METALLURGY 29 — LATTICES 24 — POWDERS 29


14
TRANSITION METALS
14
METALS
26
ALLOYS
26
HEAT RESISTING METALS
26
STAINLESS STEELS
26
STEELS
14
ALKALINE EARTH METALS
14
ACTINIDES
VANADIUM ALLOYS 15
TITANIUM ALLOYS
Titanium Alloy-75-A
Titanium Alloy-150-A
Waspaloy
Nimonic
Molybdenum Alloy-TZM
Inconel Alloys
Udimet
Rene Alloys
46
Tungsten Bronze
TUNGSTEN ALLOYS
Alloy-L-605
Stellite
23
TANTALUM ALLOYS
Tantalum Alloy -T111
Tantalum Alloy -T222
15
NIOBIUM ALLOYS
Inconel Alloys
Alloy-S-816
52
Nimonic
Carboloy
Kovar
Waspaloy
Udimet
COBALT ALLOYS
Alnico Alloys
Alloy-L-605
Rene Alloys
Alloy-M-252
Superalloys
Alloy-N-155
Stellite
Alloy-S-816
18
Alumel
Invar
Chromel
Kovar
Constantan
Monel
Duranickel
Udimet
Nichrome
Nimonic
NICKEL ALLOYS
Alloy-A-286
Alnico Alloys
Alloy-L-605
Inconel Alloys
Alloy-M-252
Rene Alloys
Alloy-N-155
Superalloys
Alloy-S-816
Permalloy
Hymu 80
Hastelloy
Inor-8
Incoloy
Ni-O-Nel
Waspaloy
Stellite
59
MOLYBDENUM ALLOYS
Molybdenum Alloy-TZM
Inor-8
Thermenol Alloys
Alloy-M-252
Rene Alloys
Hymu 80
Udimet
Hastelloy
Waspaloy
Permalloy
47
CHROMIUM ALLOYS
Nichrome
Alloy-A-286
Chromel
Alloy-M-252
Hastelloy
Alloy-N-155
Incoloy
Alloy-S-816
Waspaloy
Alloy-L-605
Inconel Alloys
Inor-8
Udimet
Ni-O-Nel
Nimonic
Stellite
48
ZINC ALLOYS
Brass
14
Brass
Bronze
COPPER ALLOYS
Monel
Manganin
Constantan
Duralumin
30
IRON ALLOYS
Alloy-A-286
Invar
Alloy-N-155
Kovar
Ni-O-Nel
Incoloy
Thermenol Alloys
Hymu 80
37
MANGANESE ALLOYS
Alumel
Manganin
14
SCANDIUM ALLOYS 10
Amalgams
MERCURY ALLOYS 6
GOLD ALLOYS 7
HAFNIUM ALLOYS 7
ZIRCONIUM ALLOYS
Molybdenum Alloy-TZM
51
PALLADIUM ALLOYS 4
RHODIUM ALLOYS 2
YTTRIUM ALLOYS 6
ALUMINUM ALLOYS
Thermenol Alloys
Aluminides
Alnico Alloys
Duranickel
Duralumin
Alumel
Boral
66
LUTETIUM ALLOYS 10
RHENIUM ALLOYS 8
IRIDIUM ALLOYS 2
OSMIUM ALLOYS 1
PLATINUM ALLOYS 4
STRONTIUM ALLOYS 1
CALCIUM ALLOYS 2
Beryllides
BERYLLIUM ALLOYS 12
MAGNESIUM ALLOYS
Magnox
Duralumin
20
TIN ALLOYS
Babbitt Metal
Wood - Metal
Bronze
17
LEAD ALLOYS
Wood - Metal
9
THALLIUM ALLOYS 2
GALLIUM ALLOYS 4
GERMANIUM ALLOYS 4
Babbitt Metal
ANTIMONY ALLOYS 6
BISMUTH ALLOYS
Wood - Metal
8
INDIUM ALLOYS 8
SILVER ALLOYS 8
CADMIUM ALLOYS
Wood - Metal
6
RUTHENIUM ALLOYS 2
TECHNETIUM ALLOYS 1
SODIUM ALLOYS
Tungsten Bronze
9
POTASSIUM ALLOYS 7
LITHIUM ALLOYS 3
CESIUM ALLOYS 1
RUBIDIUM ALLOYS 1
CERIUM ALLOYS
Misch Metal
7
ERBIUM ALLOYS 2
HOLMIUM ALLOYS 2
SAMARIUM ALLOYS 2
TERBIUM ALLOYS 2
THULIUM ALLOYS 1
EUROPIUM ALLOYS 1
LANTHANUM ALLOYS
Misch Metal
4
DYSPROSIUM ALLOYS 2
GADOLINIUM ALLOYS 5
PRASEODYMIUM ALLOYS 2
PROMETHIUM ALLOYS 1
YTTERBIUM ALLOYS 1
NEODYMIUM ALLOYS 3
URANIUM ALLOYS 47
PLUTONIUM ALLOYS 15
THORIUM ALLOYS 10
NEPTUNIUM ALLOYS 1
CURIUM ALLOYS 1
PROTACTINIUM ALLOYS 1
AMERICIUM ALLOYS 1
POLONIUM ALLOYS 1
ALKALI METALS
14
RARE EARTHS
14

01 PRESERVATION
42 OSCILLATIONS
27 MATERIALS TESTING
24 CRYSTALS
34 PNEUMATICS
27 GAGES
33 TURBINES
50 POWER PLANTS

STORAGE
Reservoirs
Disposal
46

Altitude *Threshold*
LEVELS
Tide Underground
Sea Level Ground Level
Ground
51

PACKAGING
6

Portable
TRANSPORT
Automobiles
Railway Payload
Cranes
50

VIBRATIONS
Pines - Bohm Theory
Lamb Waves
31

ULTRASONICS
Lamb Waves
19

SOUND
Acoustics
25

PHONONS
Polarons
BCS Theory
18

Trajectories
MOTION
Propagation
Kinematics
Abel Equation
Larmor Radius
Kinetic Energy
Lagrange Equations
Klein-Gordon Equation
147

VELOCITY
Acceleration
Bunching
Critical Velocity
Critical Flow
Doppler Effect
Laminar Flow
Flow Rate
Supersonics
Reynolds Number
Mach Number
Mobility
Lorentz Force
178

ROTATION
Faraday Rotation
Coriolis Force
Moment of Inertia
Precession
Torsion
Rotator
Gyroscopes
73

SERVOMECHANISMS
17

Dynamics *Engineering*
Kinetics *Mechanisms*
MECHANICS
Statistical Mechanics
Lagrangian Function
Liouville Theorem
Coriolis Force
Dynamometers
Hydrostatics
43

PROPULSION
Vehicles *Drives*
Project Rover Thrust
Ramjet
36

AIRCRAFT
Aeronautics
Aerial Surveying
16

Philips Gauge
Hugoniot Curve
PRESSURE PWR
Langmuir Isotherm *Isobars*
Raoult Law Paschen Law
Chapman-Jouguet Condition
Hot-Wire Gages
Transpiration Method
308

MANOMETERS
Bayard-Alpert Gage
Barometers
4

Compressibility
COMPRESSION
Compressors Blowers
Compression Strength
Compressible Flow
1

VACUUM
Bayard-Alpert Gage
Philips Gauge
Ion Pumps
100

TRAPS
Getter
17

PUMPS
Ion Pumps
Electromagnetic Pumps
32

Drives
MOTORS
Diesel Engine
14

Nuclear Energy
Electric Power
POWER
Power Supplies
Power Coefficient
106

SHIPS
Savannah
Lenin
Otto Hahn
Submarines
S1W-NRTS SSCR
S5W Series S3G-WM
S1G
17

SPIN 44
ORBITS 43
ENERGY 44

CAPILLARIES 7

PIPES
Pipelines
Heat Pipes
Ducts
33

NOZZLES 11

TURBINES
Turbines Blades
Blades
17

SHELTERS 6

Lubricants
LUBRICATION 14

VALVES 15

BUILDINGS
Hospitals
Harbours
Dams
19

BEARINGS
Ball Bearings
Roller Bearings
12

Mechanisms *Machines*
MACHINE PARTS
Brakes Springs
Pistons Rotator
Pendulum
29

Shutters
Locks Doors
CLOSURES
Covers
11

Mechanical Engineering
MECHANICAL STRUCTURES
Structure *Machines*
Supports *Towers*
57

SEALS 28

BARRIERS
Gamow Barrier
Screens
16

SHELLS
Containment Shells
Containment
14

JOINTS
Flanges Gaskets
Electric Contacts
23

Sieves Cascade Impactors
FILTERS *Particle Collectors*
Screens
Ultrafiltration
Cascades
51

VESSELS
Containers
Reservoirs
Collectors *Tanks*
Capsules
Casks
Dewar Flask
71

PRESSURE VESSELS
Pressurizers Autoclaves
42

Hot Lab Microtome Pipets
Mixer-Settlers Warburg Apparatus
LABORATORY EQUIPMENT
96

27 FRICTION

24 FLUIDS

32 ROTATION

32 COMPRESSION

32 MOTION

55 MAGNETOHYDRODYNAMICS

32 AIRCRAFT

32 VELOCITY

35 THERMAL DIFFUSION

33 NOZZLES

VISCOSITY
Fluidity
Superfluidity Prandtl Number
Couette Flow Schmidt Number
Poiseuille Law Knudsen Number
Darcy Law
Einstein-Stokes Equation
44

Magnetic Storms
Geomagnetic Storms
TURBULENCE
Critical Flow
Critical Velocity
Richardson Number
Reynolds Number
Vortex Flow
Helmholtz Equation
Stirring
46

JETS
17

INJECTION
35

CYCLONE SEPARATORS
2

CENTRIFUGATION
15

PNEUMATICS
5

GAS FLOW
Electrogasdynamics
Knudsen Effusion
53

Laminar Flow Slug Flow
Rheology *Circulation* *Flow*
FLUID FLOW
Eckert Number Flow Models
Froude Number Flow Rate
Grashof Number Couette Flow
Hartmann Number Compressible Flow
Knudsen Number Incompressible Flow
Peclet Number Critical Flow
Prandtl Number Critical Velocity
Reynolds Number Darcy Law
Richardson Number Poiseuille Law
Stanton Number Two-Phase Flow
Weber Number Stagnation
Rayleigh-Taylor Instability
114

AERODYNAMICS
Wind Tunnel *Drag*
6

DIFFUSION
Self-Diffusion
Kirkendall Effect
Knudsen Effusion
Wagner Theory
Schmidt Number
Donnan Theory
Lewis Number
Effusion Dialysis
Fick Law Osmosis
Einstein-Stokes Equation
206

FLOWMETERS
Flow Rate Venturi Tubes
7

LIQUID FLOW
Hydrodynamics
Electrohydrodynamics
Navier-Stokes Equations
Rheology Cavitation
29

HYDRAULICS
13

COUNTER CURRENT
Cross Flow Reverse Flow
8

HYDROLOGY 24

LIQUIDS 24

PUMPS 32

HEAT EXCHANGERS 35

34 DIFFUSION

54 BUBBLE CHAMBERS

24 LIQUEFYING

24 EVAPORATION

53 BURNOUT

46 INFRARED RADIATION

51 COOLANTS

30 HEAT TREATMENTS

40 THERMOCOUPLES

THERMAL DIFFUSION 11

Rayleigh Number
Peclet Number
Grashof Number
Natural Convection
Free Convection
Forced Convection
CONVECTION
Natural Circulation
20

Voids
BUBBLES
Bubble Growth
Growth
14

Vaporization
BOILING
Transition Boiling
Subcooled Boiling
Film Boiling
Pool Boiling
Boiling Points
Boilers
Vapor Generators
64

NUCLEATE BOILING
Departure Nucleate Boiling
7

Adiabatic Demagnetization
De Haas-Van Alphen Effect
CRYOGENICS
Freons
26

CONDENSERS 7

HEAT EXCHANGERS
Economizers Radiators
30

ENTROPY
Mollier Diagram
Prigogine Theorem
Isentropy
16

Hot Channels
Critical Heat Flux Scaling
HIGH TEMPERATURE
Pyrometallurgy
269

Superfluidity
Refrigeration Freezing Out
Cryostats Lyophilization
Absolute Zero Temperature
LOW TEMPERATURE
113

THERMAL RADIATION 35

HEAT TRANSFER
Hot Channel Factors
Righi-Leduc Effect
Vapotron Effect
Nusselt Number Lewis Number
Peclet Number Heat Pipes
99

Equation of State
Thermal Properties
THERMODYNAMICS
Adiabatic Processes Irreversible Processes
Brayton Cycle Boltzmann Constant
Carnot Cycle Boltzmann Statistics
Rankine Cycle Partition Function
Gibbs-Duhem Equation Virial Coefficients
Onsager Relations Wigner Distribution
Prigogine Theorem Mayer Theory
143

Temperature Coefficient Curie Point
Transition Temperature Fever
Doppler Reactivity Hibernation
Critical Temperature Hypothermia
Debye-Waller Factor Dew Point
Arrhenius Equation
TEMPERATURE
Thermogravimetry Lambda Point
Thermoluminescence Saha Equation
Thermostats Nernst Effect
Thermistors Righi-Leduc Effect
Differential Thermal Analysis
503

COOLING
Refrigeration
Subcooling
64

THERMOMETERS
Bolometers Pyrometers
7

Katharometers
Heat Conduction *Conductivity*
THERMAL CONDUCTIVITY
Prandtl Number Peclet Number
Wiedemann-Franz Law
49

HEATING
Heaters Heat Generation
Baking Firing
Pyroelectricity
146

ENTHALPY
Free Energy
Mollier Diagram
12

TRANSITION HEATS
Formation Heat Solution Heat
Absorption Heat Combustion Heat
Activation Heat Dissociation Heat
Adsorption Heat Evaporation Heat
Fusion Heat Mixing Heat
Reaction Heat Sublimation Heat
Transformation Heat Transport Heat
0

THERMAL INSULATION
Insulation
11

SUPERHEATING 15

SPECIFIC HEAT
Heat Capacity
Atomic Heat Grueneisen Constant
Molar Heat Born-von Karman Theory
Debye Temperature
33

THERMAL STRESSES
Thermal Fatigue
Thermal Spikes
20

CALORIMETERS 18

EXPANSION 28

STRESSES 27

CONSERVATION LAWS 44

43 SPACE — 27 MASS — 32 VELOCITY

44 ENERGY — 44 PARITY — 47 ELEMENTARY PARTICLES — 46 PHOTONS — 46 ELECTROMAGNETIC WAVES

57 ERRORS — 42 DIGITAL SYSTEMS — 34 DIFFUSION — 46 SHIELDING — 45 ANGULAR DISTRIBUTION

HAMILTONIAN FUNCTION
Hamilton-Jacobi Equations
21

Bethe-Salpeter Equation
Klein-Gordon Equation
General Relativity Theory
RELATIVITY THEORY
Einstein Field Equations
Lorentz Transformations
Equivalence Principle
Schwarzschild Solution
Minkowski Space
63

Mandelstam Representation
DISPERSION RELATIONS
Sommerfeld-Watson Theory
Breit-Wigner Formula — Breit Theory
Chew-Mandelstam Formalism
21

Fokker-Planck Equation
Green Function — Riccati Equations
Bessel Functions — Cluster Expansion
Cauchy Problem — Continuity Equations
DIFFERENTIAL EQUATIONS
Integral Equations — Laplace Equations
Poisson Equations — Laplace Transform
Poisson Brackets — Mathieu Equation
180

Isovectors
Spinor
Tensors
VECTORS
Eigenvectors
Pseudovectors
Pseudoscalar
Burgers Vector
64

S-Matrix
MATRICES
Collision Matrix
Density Matrix
Hermitian Matrix
K-Matrix
R-Matrix
64

Newton Method
Ilkovic Equation
Iterative Methods
EQUATIONS
Sum Rules
251

Yukawa Potential — Fermi Interaction
FIELD THEORY
Pology — Yang-Mills Theory
Radiative Corrections — Crossing Symmetry
CVC Theory — Propagator
126

Calculations
NUMERICALS
Strip Approximation
Floating Points
354

MATHEMATICS
Form Factor — Laplacian
Analytical Functions — Boolean Algebra
Boundary Conditions — Clifford Algebra
Canonical Transformation — Eigenfunctions
Conformal Mapping — Spectral Functions
Factorization — Finite Difference Method
Fourier Analysis — Information Theory
Functions — Games Theory
Integrals — Least Squares — Interpolation
Lobachevsky Geometry — Nonlinear Problems
Operators — Phase Space — Polynomials
Power Series — Quaternions — Topology
Riemann Space — Series Expansion
Singularity — Space-Time — Eigenvalues
Variational Method — Vertex Functions
Unitarity — Commutation Relations
265

TRANSPORT THEORY
Boltzmann Equation — Case Method
Collision Integral — Carlson Method
Feynman Method — Nelkin Theory
Boltzmann-Vlasov Equation
Wick-Chandrasekhar Method
Serber-Wilson Method
45

BOSONS
Bose-Einstein Statistics
19

Three Body Problem — Slater Determinant
MANY BODY PROBLEM
Bethe-Goldstone Equation — Wick Theorem
Brueckner Method — Goldstone Diagrams
24

FERMIONS
Fermi Gas
31

Born approximation — D-Wave
Dirac Equations — Baryon Number
De Broglie Wavelength
Isospin — Hypercharge
Correspondence Principle — F-Wave
Optical Theorem — Lepton Number
Occupation Number — WKB Approximation
QUANTUM MECHANICS
Quantum Electrodynamics — P-Wave
Quantum Number — Pauli Principle
Schroedinger Equation — Tunnel Effect
Uncertainty Principle — Selection Rules
232

PERTURBATION THEORY
Born Approximation
Van Hove-Hugenholtz Theory
55

MONTE CARLO METHOD
18

Racah Coefficients
Clebsch-Gordan Coefficients
GROUP THEORY
Poincare Group — SU Group
Rotation Group — U-3 Group
Convex Sets — U-6 Group
Wigner Theory — U-12 Group
Unitarity Symmetry
Lie Groups
58

Autocorrelation — **STATISTICS**
Boltzmann Statistics — Brownian Movement
Canonical Ensemble — Correlation
Expectation Value — Gaussian Processes
Porter-Thomas Distribution — Virial Theorem
Partition Function — Poisson Distribution
Stochastic Processes — Wigner Distribution
Probability
126

Mathematical Tables
TABLES — Sherman Tables
Catalogs
126

DISTRIBUTION — Segregation
Lateral-Distribution — Partition
309

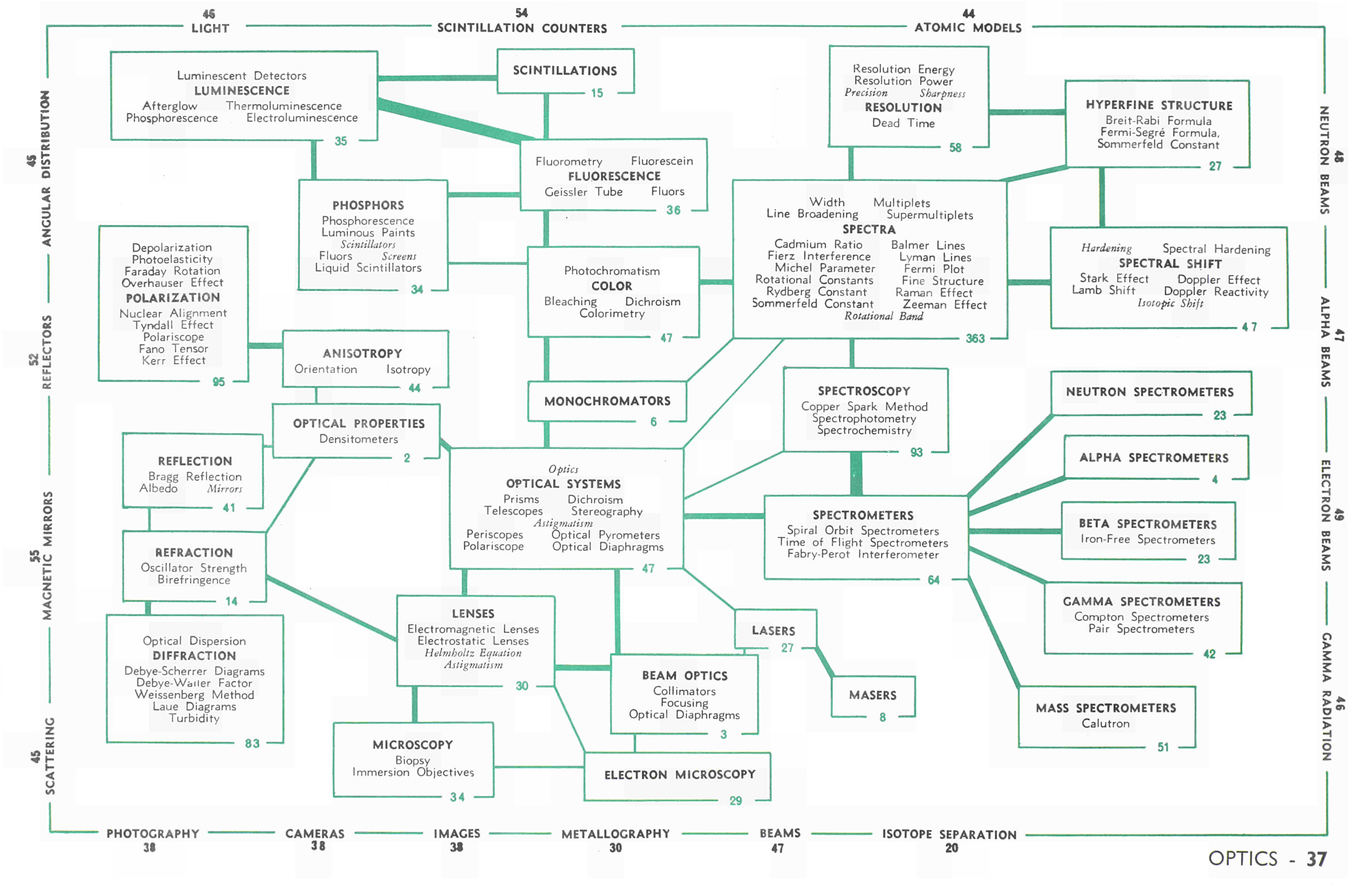
DISTURBANCES
Perturbations
Deficiency
6

VARIATIONS
Diurnal Variation
27 Day Variation
Forbush depression
Schlieren — Seasons
349

Eigenfrequency — **FREQUENCY**
Knight Shift — Cyclotron Frequency
171

ABUNDANCE
Depletion — *Resources*
345

TURBULENCE 34 — TRANSIENTS 53 — CONSERVATION LAWS 44 — OSCILLATIONS 42 — ENRICHMENT 19


46 LIGHT
54 SCINTILLATION COUNTERS
44 ATOMIC MODELS
45 ANGULAR DISTRIBUTION
52 REFLECTORS
55 MAGNETIC MIRRORS
45 SCATTERING
48 NEUTRON BEAMS
47 ALPHA BEAMS
49 ELECTRON BEAMS
46 GAMMA RADIATION
Luminescent Detectors
LUMINESCENCE
Afterglow Thermoluminescence
Phosphorescence Electroluminescence
35
SCINTILLATIONS
15
Fluorometry Fluorescein
FLUORESCENCE
Geissler Tube Fluors
36
PHOSPHORS
Phosphorescence
Luminous Paints
Scintillators
Fluors Screens
Liquid Scintillators
34
Depolarization
Photoelasticity
Faraday Rotation
Overhauser Effect
POLARIZATION
Nuclear Alignment
Tyndall Effect
Polariscope
Fano Tensor
Kerr Effect
95
ANISOTROPY
Orientation Isotropy
44
Photochromatism
COLOR
Bleaching Dichroism
Colorimetry
47
MONOCHROMATORS
6
OPTICAL PROPERTIES
Densitometers
2
REFLECTION
Bragg Reflection
Albedo Mirrors
41
REFRACTION
Oscillator Strength
Birefringence
14
Optical Dispersion
DIFFRACTION
Debye-Scherrer Diagrams
Debye-Waller Factor
Weissenberg Method
Laue Diagrams
Turbidity
83
Optics
OPTICAL SYSTEMS
Prisms Dichroism
Telescopes Stereography
Astigmatism
Periscopes Optical Pyrometers
Polariscope Optical Diaphragms
47
LENSES
Electromagnetic Lenses
Electrostatic Lenses
Helmholtz Equation
Astigmatism
30
MICROSCOPY
Biopsy
Immersion Objectives
34
BEAM OPTICS
Collimators
Focusing
Optical Diaphragms
3
ELECTRON MICROSCOPY
29
LASERS
27
MASERS
8
Resolution Energy
Resolution Power
Precision Sharpness
RESOLUTION
Dead Time
58
Width Multiplets
Line Broadening Supermultiplets
SPECTRA
Cadmium Ratio Balmer Lines
Fierz Interference Lyman Lines
Michel Parameter Fermi Plot
Rotational Constants Fine Structure
Rydberg Constant Raman Effect
Sommerfeld Constant Zeeman Effect
Rotational Band
363
SPECTROSCOPY
Copper Spark Method
Spectrophotometry
Spectrochemistry
93
SPECTROMETERS
Spiral Orbit Spectrometers
Time of Flight Spectrometers
Fabry-Perot Interferometer
64
HYPERFINE STRUCTURE
Breit-Rabi Formula
Fermi-Segré Formula,
Sommerfeld Constant
27
Hardening Spectral Hardening
SPECTRAL SHIFT
Stark Effect Doppler Effect
Lamb Shift Doppler Reactivity
Isotopic Shift
47
NEUTRON SPECTROMETERS
23
ALPHA SPECTROMETERS
4
BETA SPECTROMETERS
Iron-Free Spectrometers
23
GAMMA SPECTROMETERS
Compton Spectrometers
Pair Spectrometers
42
MASS SPECTROMETERS
Calutron
51
PHOTOGRAPHY 38
CAMERAS 38
IMAGES 38
METALLOGRAPHY 30
BEAMS 47
ISOTOPE SEPARATION 20

37 OPTICAL SYSTEMS

07 RADIOGRAPHY

28 FILMS

53 REMOTE CONTROL

54 PHOTOGRAPHIC FILM DETECTORS

46 LIGHT

IMAGES
Image Intensifiers
Image Converters
Replica Techniques
17

TELEVISION
Orthicons
4

RADIOAUTOGRAPHY
Autoradiography
34

CAMERAS
Vidicons Orthicons
11

PHOTOGRAPHY
42

PHOTOGRAPHIC FILM
Photographic Emulsions
19

PHOTOMETRY
Luminosity
Spectrophotometry Brightness
Turbidimetry Fluorometry
50

PHOTOCHEMISTRY
Photoreactivation
Quantum Yield
11

NUCLEAR EMULSIONS
Emulsion Chambers
Herschel Effect
Ilford Emulsions
Eastman Emulsions
Nikfi Emulsions
53

SPECTROSCOPY 37

RADIATION CHEMISTRY 20

EMULSIONS 24

40
ELECTRIC MOMENTS

40
DIPOLES

41
COILS

40
CURRENTS

MAGNETOMETERS
Fluxmeters
4

Nuclear Magnetic Moments
MAGNETIC MOMENTS
Bloch Equations — *Bohr Magneton*
Gyromagnetic Ratio — Schmidt Lines
Larmor Precession — Schmidt Model
Nuclear Alignment — Weiss Theory
Nuclear Induction — Fermi-Segre Formula
56

FERROMAGNETIC MATERIALS
Antiferromagnetic Materials
Ferroelectric Materials — Weiss Theory
Curie Point — Barkhausen Effect
Domain Structure
Bloch Wall
29

Permeability
SUSCEPTIBILITY
Curie-Weiss Law
Faraday Method
Gouy Method
21

MAGNETS
Electromagnets
36

MAGNETIC MATERIALS
Abrikosov Theory — Faraday Method
Magnetic Cores
16

MAGNETIC RESONANCE
Bloch Equations
21

Magnetic Properties
Magnetic monopoles
MAGNETISM
Diamagnetism — Paramagnetism
Magnons — Magnetic Dipoles
Magnetic Amplifiers
Brillouin Function
Langevin Equation
66

HYSTERESIS
5

EDDY CURRENTS
4

INDUCTION
Nuclear Induction
Faraday Induction
25

ELECTROMAGNETISM
Maxwell Equations
22

Geomagnetism
Magnetic Storms
Magnetic Compression
Adiabatic Demagnetization
Magnetostriction — Cryotrons
MAGNETIC FIELDS
Cusped Geometries — Gyrofrequency
Lorentz Force — Knight Shift
Larmor Radius — Zeeman Effect
Larmor Precession — Breit-Rabi Formula
Spiral Orbit Spectrometers
Rotational Transform
Righi-Leduc Effect
Forbush Depression
Faraday Rotation
Cyclotron Radiation
Nernst Effect
Critical Field
279

IMPEDANCE
3

Joule Effect
Faraday Induction
Electromagnetic Lenses
ELECTROMAGNETIC FIELDS
38

HALL EFFECT
Ettinghausen Effect
12

44
NUCLEAR MAGNETIC RESONANCE

27
MATERIALS TESTING

ELECTROMAGNETIC WAVES
46

ELECTRIC FIELDS
40

CAPACITORS
41

39
ELECTROMAGNETIC FIELDS

18
ELECTROCHEMISTRY

41
ELECTRODES

24
CRYSTALS

56
ELECTROSTATIC GENERATORS

35
THERMOMETERS

35
THERMODYNAMICS

35
CRYOGENICS

Redox Potential Potentiometry
Voltage *Electromotive Force*
ELECTRIC POTENTIAL
Overvoltage Donnan Theory
Electroencephalography
Electrocardiography
Nyquist Theorem
138

PIEZOELECTRICITY
3

Electrogasdynamics Electrokinetics
Electrohydrodynamics
ELECTRIC FIELDS
Coulomb Excitation Wien Effect
Coulomb Scattering Stark Effect
Coulomb Field Schottky Effect
Debye Length Lorentz Force
Nernst Effect Rutherford Scattering
Nuclear Screening Electrostatic Lenses
Electron Transfer
105

MULTIPOLES
Quadrupoles
Octupoles
Multipolarity
3

Space Charge
Charge Transport
Exchange Charge Exchange
ELECTRIC CHARGES
Coulomb Field Langmuir Probe
Lorentz Force Pyroelectricity
Schottky Effect Electrokinetics
Quarks Electric Monopoles
116

DIPOLES
Van der Waals Forces
Langevin Equation
Dipole Moments
London Forces
Electrets
30

ELECTROSTATICS
Electrostatic Fields
Tandem Accelerators
21

ELECTRIC MOMENTS
26

ELECTRICITY
Electric Properties
Paraelectricity
Electromechanics
Electroluminescence
Ohm Law
52

ELECTRODYNAMICS
Quantum Electrodynamics
Einstein-Schroedinger Theory
Maxwell Equations
Lorentz Gauge
24

Thermoelectric Cells
THERMOELECTRICITY
Peltier Effect
Seebeck Effect
14

THERMOCOUPLES
17

ELECTRIC CONDUCTIVITY
Conductometry Photoconductivity
Debye-Hueckel Theory Wien Effect
Electric Contacts Ionic Conductivity
Wiedemann-Franz Law Ohm Law
Nernst Effect Nyquist Theorem
128

GENERATORS
Homopolar Generators
Cascade Generators
34

Voltmeters
Galvanometers
ELECTRIC METERS
6

THERMIONICS
Richardson Equation
Schottky Effect
Thermionic Cells
Work Functions
19

CURRENTS
Direct Current Alternating Current
Charge Transport Critical Current
Joshi Effect Faraday Current
Richardson Equation Schottky Effect
Skin Effect Ohm Law
145

SUPERCONDUCTIVITY
London Equation Cryotrons
Ginzburg-Landau Theory
Abrikosov Theory
51

ELECTROMETERS
6

SEMICONDUCTORS
41

DIELECTRICS
41

EDDY CURRENTS
39

INDUCTION
39

40 ELECTRIC CONDUCTIVITY

40 ELECTRIC CHARGES

54 SOLID-STATE COUNTERS

42 DIODES

40 ELECTRIC CHARGES

39 IMPEDANCE

28 WIRES

39 INDUCTION

42 AMPLIFIERS

29 WELDING

18 ELECTROLYTIC CELLS

CARRIERS
9

Electric Insulation
Insulators Electrets
DIELECTRICS
Formvar *Kraft Paper*
Paraelectricity Permittivity
35

Solid-State Physics
SEMICONDUCTORS
Micromodules
Tunnel Effect *Acceptors*
Zener Diode Junctions
Solar Cells P-N Counters
60

Electrical Resistance
RESISTORS
Thermistors
15

Electric Condensers
CAPACITORS
20

TRANSISTORS
19

CIRCUITS
Waveguides Oscillators
Bridge Circuits Delay Lines
Gating Circuits Flip-Flop
Printed Circuits Multiplexer
Sweep Circuits Cavity Resonators
Miniaturization
Timing Circuits Multivibrators
Cathode Followers Triggers
102

CABLES
Coaxial Cables
8

ELECTRODES
Grids Dees
Dropping Electrodes
74

Solenoids
COILS
Electromagnets
32

CATHODES
Hollow Cathodes
Anticathodes
41

ANODES
22

Relays
Bimetals
SWITCHES
13

TRANSFORMERS
5

ELECTROMAGNETIC FIELDS 39

ELECTRIC METERS 40

ELECTRON TUBES 42

41 SEMICONDUCTORS — 49 ELECTRON BEAMS — 41 TRANSISTORS — 36 NUMERICALS — 36 MATHEMATICS — 53 CONTROL

41 ELECTRODES

41 CIRCUITS

42 BACKGROUND

54 RADIATION DETECTORS

53 CONTROL SYSTEMS

DIODES 11

Multiplier Tubes
PHOTOMULTIPLIERS
Electron Multipliers Dynodes
30

Binary Codes
DIGITAL SYSTEMS
Analog-to-Digital Converters
41

ANALOG SYSTEMS
Analog-to-Digital Converters
Reactor Simulators
Simulators
Simulation
23

ELECTRON TUBES
Ignitrons Magnetrons Image Converters
Triodes Cathode Ray Tubes Image Tubes
Geissler Tube Flash Tubes Duoplasmatron
Dekatrons Capacitron Plasmatron
Canal Rays Klystrons Thyratrons
35

Gain *Cascades*
AMPLIFIERS
Magnetic Amplifiers
Parametric Amplifiers
36

Data Processing
COMPUTERS
Floating Points
Multiplexer
IBM Philco 2000
IBM 1401 CDC 3600
IBM 1620 CDC 1604
IBM 650 Univac
IBM 704 Maniac 3
IBM 7090 Illiac
IBM 7094 Illiac 2
IBM 7040 Illiac 3
IBM 709 Datatron
Machines
109

PROGRAMMING
Binary Codes Compilers
Algol A-Codes
Fortran B-Codes
Muft-Code
Oracle-Code Z-Codes
64

ELECTRONICS
High Frequency Engineering
Quantum Electronics
18

ELECTRONIC EQUIPMENT
Rectifiers Faraday Cage
Antennas Flying Spot Digitizer
53

AUTOMATION 1

Probes
INSTRUMENTS
Radiometers
Dynamometers
Interferometers
Balances
Goniometers
Ionosondes
Riometers
Plotters
147

RECORDING SYSTEMS
Memory Devices Magnetic Tapes
Punched Cards Electrocardiography
Punched Tapes Electroencephalography
48

TRANSDUCERS
Analog-to-Digital Converters
Integrators
12

Choppers
Blocking Oscillator
PULSE GENERATORS 13

TIME
Dead time
340

BACKGROUND
Noise Whistlers
Nyquist Theorem
49

Impulse *Spikes*
PULSES
Electrocardiography
Counting Rates
Chronotrons
Bursts
114

Discriminators
Multi-Channel Analyzers
PULSE ANALYZERS
Time-to-Pulse Height Converter
Channel Analyzers
39

OSCILLOGRAPHS
Oscilloscopes
11

SIGNALS 32

OSCILLATIONS
Fourier Transformations
Oscillators Fourier Analysis
Zitterbewegung *Harmonic Analysis*
Huygens Principle Nyquist Diagram
125

Data Transmission
Information Theory
COMMUNICATIONS 8

MODULATION
Kerr Cells
Bunching
19

DOCUMENTATION 57 — FREQUENCY 36 — VIBRATIONS 32 — VARIATIONS 36 — RELAXATION 48 — ELECTRIC METERS 40 — COUNTERS 54

22 EARTH

46 COSMIC RADIATION

32 PROPULSION

23 MINERALS

39 MAGNETIC FIELDS

22 GEOPHYSICS

32 TRANSPORT

ELECTRONIC EQUIPMENT 42

METEOROLOGY 09

MOON
Project Apollo
6

PLANETS
Mars Venus Planet
Jupiter Planet
Jupiter
7

Chromosphere
Solar Prominences
Sunspots Corona
Solar Flares Photosphere
Faculae
Solar Wind **SUN**
International Geophysical Year
Solar Radiation Solar System
27 Day Variation Solar Cells
50

Galaxies Nebulae Quasars
STARS
Chandrasekhar Theory Cepheids
White Dwarfs Red Dwarfs
Giant Stars Red Giants
Star Clusters Novae
Supernovae
25

SATELLITES
Discoverer Satellites
Explorer Satellites
Sputnik Satellites
Vostok Satellites
Project Vela
20

GRAVITATION
Einstein Field Equations
General Relativity Theory
Einstein-Schroedinger Theory
Schwarzschild Metric
Abel Equation
Gravitons
22

METEORITES
Achondrites
Tektites
Troilite
15

ROCKETS
Project Rover
Launching
Missiles
Jupiter
26

Cosmogony Cosmology
ASTROPHYSICS
Hertzsprung-Russel Diagram
Fermi Acceleration
Meteors Comets
29

Cosmos
Universe
SPACE
Interplanetary Space
General Relativity Theory
37

Van Allen Belts
RADIATION BELTS
13

NASA
SNAP Systems
Space Probes
SPACE VEHICLES
27

AURORAE
Airglow
9

SPACE FLIGHT
Astronautics
Project Apollo
20

ATMOSPHERE
Mesosphere
Troposphere
Tropopause
66

IONOSPHERE
Ionosondes D-Layer
Whistlers E-Layer
Riometers F-Layer
25

GUIDANCE
Gyroscopes
3

ORBITS
Spin-Orbit Interaction
J-J Coupling L-S Coupling
45

BALLOONS
6

Tropopause
STRATOSPHERE
8

RE-ENTRY
3

45 HALF-LIFE

48 RESONANCE NEUTRONS

49 MESONS

39 MAGNETIC RESONANCE

37 HYPERFINE STRUCTURE

47 NUCLEI

48 NUCLEONS

32 PHONONS

36 FIELD THEORY

45 RECOILS

45 CAPTURE

Lee-Yang Theory
CP Invariance
PARITY
54

Goldberger-Treiman Relation
LIFETIME
Level Widths
Particle Width
Strength Function
Migration Aera
69

RESONANCE
Eta Resonances — Cavity Resonators
Giant Resonance — Endor
K*Resonances — Hurwitz Effect
N*Resonances — Lamb Theory
Y*Resonances — A Resonances
Omega Resonances — B Resonances
Rho Resonances — ABC Resonances
Zeta Resonances — Hybrid Resonance
Porter-Thomas Distribution
Electron Spin Resonance
Phi Resonances
173

Nuclear Cascade *Cascades*
ENERGY LEVELS
Auger Effect — Eigenstates — Level Widths
Fermi Level — P-States — Particle Width
Lamb Shift — S-States
Ritz Method — Virtual States
Band Theory — Rotational State
F-Sum Rule — Vibrational State — Hurwitz Effect
Hartree-Fock Method — Metastable States
Thomas-Fermi Model — External Conversion
Jahn-Teller Effect — Population Inversion
Wigner-Seitz Method — Brueckner Model
Breit-Rabi Formula — Strength Function
Nuclear Cascade — *Resonance States*
310

Excitons
EXCITATION
Auger Effect
Activation Energy
Umklapp Processes
Coulomb Excitation
Excitation Function
Nuclear Temperature
External Conversion
Bethe-Bloch Relation
189

Ericson Theory
Peierls Method
Porter-Thomas Distribution
Hauser-Feshbach Theory
COMPOUND NUCLEI
17

NUCLEAR THEORY
42

EV RANGE — Milli EV Range
14

ENERGY RANGE
Momentum Range
107

KEV RANGE
33

MEV RANGE
114

GEV RANGE — TeV Range
BeV Range
29

Nuclear Matter — Deformed Nuclei
Nuclear Core — Nuclear Radii
Nuclear Forces — *Nuclear Structure*
Nuclear Potential
NUCLEAR MODELS
Bethe-Goldstone Equation — Optical Model
Nucleon-Nucleon Potential — Shell Models
Saxon-Woods Potential — Collective Model
Nilsson-Mottelson Model — Liquid Drop Model
Weizsaecker Formula — Fermi Gas Model
Square Well Potential — Exchange Model
Harmonic Potential — Evaporation Model
Sommerfeld-Watson Theory — Cluster Model
Brueckner Model — Single-Particle Model
J-J Coupling — Serber Theory — Gas Model
162

Intermolecular Forces
BINDING ENERGY
Pairing Energy
Nuclear Forces — Ionic Strength
Cluster Model — Covalence
Double Bonds — Coulomb Energy
Bond Angle — Lewis Acids
Bond Lengths — Lewis Bases
Majorana Theory — Cohesion
Born-Oppenheimer Approximation
Heitler-London Theory
Weizsaecker Formula
72

ENERGY
Kinetic Energy
Threshold Energy
Appearance Potential
Electron Temperature
Bethe-Bloch Relation
Q-Value
474

Invariance Principle
CONSERVATION LAWS
6

CONVERSION
37

Helicity
Inertial Force
MOMENTUM
Impulse
Momentum Range
Wannier Function
Dyson Representation
102

NUCLEAR MAGNETIC RESONANCE
Knight Shift
35

INTERNAL CONVERSION
Internal Pair Production
Gamma Transition
28

SPIN — Electron Spin Resonance
Rutherford Scattering
BCS Theory — Dirac Equations
Fano Tensor — Fine Structure
Helicity — Wigner-Eisenbud Theory
J-J Coupling — Schmidt Lines
L-S Coupling — Moeller Scattering
Spin Waves — Spin-Orbit Interaction
Spinor — Spin-Lattice Relaxation
184

ANGULAR MOMENTUM
Gyromagnetic Ratio
Fine Structure
L-S Coupling
Partial Waves
44

ATOMIC MODELS
Electronic Structure
Atomic Shells — Bohr Theory
Hartree-Fock Method
Spin-Orbit Interaction
Hybridization
55

Electron Pairs
VALENCE
Coordination Valences
22

COMPOUNDS 15 — IONS 47 — ORBITS 43 — ATOMS 47 — MAGNETIC RESONANCE 39 — ANGULAR DISTRIBUTION 45

46 SHIELDING

42 TIME

44 LIFETIME

47 ALPHA PARTICLES

49 ELECTRONS

49 POSITRONS

48 DIFFUSION LENGTH

46 PHOTONS

FT-Value
HALF-LIFE
76

Stacked Foil Technique
ACTIVATION
46

Fermi-Teller Theory
Radiative Capture
CAPTURE
K-Capture
76

Uptake
Stopping
ABSORPTION
Self-Absorption Beer Law
Transparency Opacity
Buildup Riometers
Half-Thickness Blackness Theory
281

ALPHA DECAY
Gamow Barrier
17

Isomeric Transition
DECAY
Branching Ratio
Degradation
Spurions
166

Positron Decay Lee-Yang Theory
Fermi Interaction Fierz Interference
BETA DECAY
Feynman-Gell-Mann Theory FT-Value
Gamow-Teller Rules
74

ANNIHILATION
17

Internal Pair Production
PAIR PRODUCTION
Bethe-Heitler Theory Pair Spectrometers
19

Transmutations
NUCLEAR REACTIONS
Stripping Breit-Wigner Formula
Pick-Up Hauser-Feshbach Theory
Szilard-Chalmers Reaction
Spallation DWBA Approximation
Butler Theory Direct Reactions
Giant Resonance Peierls Method
244

Photonuclear Reactions
PHOTOPRODUCTION
24

PHOTOFISSION
8

Tamper
Nuclear Weapons
Thermonuclear Explosions
NUCLEAR EXPLOSIONS
Project Castle Project Plowshare
Project Chariot Project Plumbbob
Project Gnome Project Sedan
Project Hardtack Project Shoal
Project Jangle Project Teapot
Project Manhattan Project Tumbler
Project Vela Project Upshot
59

Scattering Length
Scattering Amplitude
SCATTERING
Cascades
Multiple Scattering
Effective Range Theory
Sommerfeld-Watson Theory
Impulse Approximation
S-Matrix Coulomb Scattering
Backscattering Jost Function
Optical Theorem WKB Approximation
335

ELASTIC SCATTERING
Delbrueck Scattering
Rutherford Scattering
Thomson Scattering
Dirac Form Factor
Rosenbluth Formula
N/D Method
36

INELASTIC SCATTERING
Raman Effect
28

Goniometers
Angular Correlation
ANGULAR DISTRIBUTION
Treiman-Yang Test Milne Problem
Butler Theory Bond Angle
185

Ramsauer Effect
Rosenbluth Formula
Klein-Nishina Formula
Breit-Wigner Formula
CROSS SECTIONS
Total Cross Sections
Excitation Function
Giant Resonance
Barns
279

FISSION
Disintegration
Spallation
Ternary Fission
Chain Reactions
Fission Yield
Bohr-Wheeler Theory
68

Bethe-Salpeter Equation Peripheral Collisions
Feynman Diagram Exchange Interactions
Central Potential *Exchange* Charge Exchange
Dalitz Plot CP Invariance
INTERACTIONS
Strong Interactions
Fermi Model Wigner Force
Charge Independence Hard-Core Potential
Nucleon-Nucleon Potential Tamm-Dancoff Method
Heisenberg Force Gauss Potential
Brueckner Method Maiorana Force
Okubo Mass Formula Low Equation
Electromagnetic Interactions
Williams-Weizsaecker Theory Larmor Precession
Coulomb Correction Lorentz Force
Foldy Term
Weak Interactions
V-A Interactions Fermi Interaction
Fierz Interference Lee-Yang Theory
Feynman-Gell-Mann Theory
411

RECOILS
Knock-On
Szilard-Chalmers Reaction
39

COLLISIONS
Van der Waals Forces
Brownian Movement
39

COUPLING
J-J Coupling
L-S Coupling
Coupling Constants
Pseudovector Coupling
29

48 SLOWDOWN

22 EXPLOSIONS

20 FISSION PRODUCTS

ANISOTROPY 37

DISTRIBUTION 36

INTERNAL CONVERSION 44

54 RADIATION DETECTORS — 06 RADIATION INJURIES — 06 RADIATION SICKNESS — 01 RADIOSENSITIVITY — 09 RADIOACTIVITY — 01 PRESERVATION — 07 RADIOTHERAPY

47 IONS — 19 DECOMPOSITION — 20 RADIATION CHEMISTRY — 01 RADIOBIOLOGY — 07 RADIOTHERAPY — 20 RADIOISOTOPES — 43 ASTROPHYSICS — 20 COBALT 60

54 IONIZATION CHAMBERS

36 QUANTUM MECHANICS

42 PHOTOMULTIPLIERS

43 RADIATION BELTS

52 SHIELDING MATERIALS

54 CHERENKOV COUNTERS

Photoionization
Ion Pumps Penning Effect
Lorentz Gas
Dissociation
IONIZATION
Avalanche Effect
Bethe-Bloch Relation
Electron Attachment
Townsend Discharge
Corona Effect
134

Radiation Damage
RADIATION EFFECTS
Koehler-Seitz Theory
Joshi Effect
Wigner Effect
379

RADIATION DOSES
Dose Fractionation
MPD
340

Richardson Equation
Secondary Emission
EMISSION
Lambert Law
Auger Effect
133

MOESSBAUER EFFECT
15

Exposure
IRRADIATION
Whole-Body Irradiation
Radiosterilization
403

GAMMA RADIATION
Gamma Cascades Radiative Capture
389

GAMMA SOURCES
56

RADIATION SOURCES
X-Ray Sources Lamps
Point Sources
70

Rossi Curve
Cosmic Particles
Cosmic Showers
Cosmic Ray Stars
COSMIC RADIATION
Primary Cosmic Radiation
Fermi Acceleration Showers
Forbush Depression Varitrons
East-West Asymmetry X Agent
62

COMPTON EFFECT
Compton Spectrometers
Klein-Nishina Formula
13

X-Ray Sources
X RADIATION
Debye-Waller Factor
Weissenberg Method
Laue Diagrams
323

RADIATIONS
Radiation Hazards
Solar Radiation
Cyclotron Radiation
Ionizing Radiations
Coherent Radiation
Multipole Radiation
Blackness Theory
LET
129

Protection
SHIELDING
Biological Shielding
Thermal Shielding
Debye Length
93

Williams-Weizsaecker Method
Rayleigh Scattering
Cascades
Cascade Showers
Photoionization
PHOTONS
73

ULTRAVIOLET RADIATION
48

Migdal Theory
BREMSSTRAHLUNG
Inner Bremsstrahlung
Bethe-Heitler Theory
34

LIGHT
Kerr Cells Brightness
Joshi Effect Luminosity
Flash Tubes Opacity
Beer Law Transparency
Fabry-Perot Interferometer
Delbrueck Scattering
Tyndall Effect
Raman Effect
Phototropy
94

CHERENKOV RADIATION
6

Photosensitivity
Photoconductivity
PHOTOELECTRIC EFFECT
Photoelectric Cells
21

Radiometers
ELECTROMAGNETIC WAVES
Faraday Rotation
Poynting Vector Thomson Scattering
39

WAVE PROPAGATION
Phase Shift Interference
Amplitude Wave Packets
Second Sound Third Sound
7

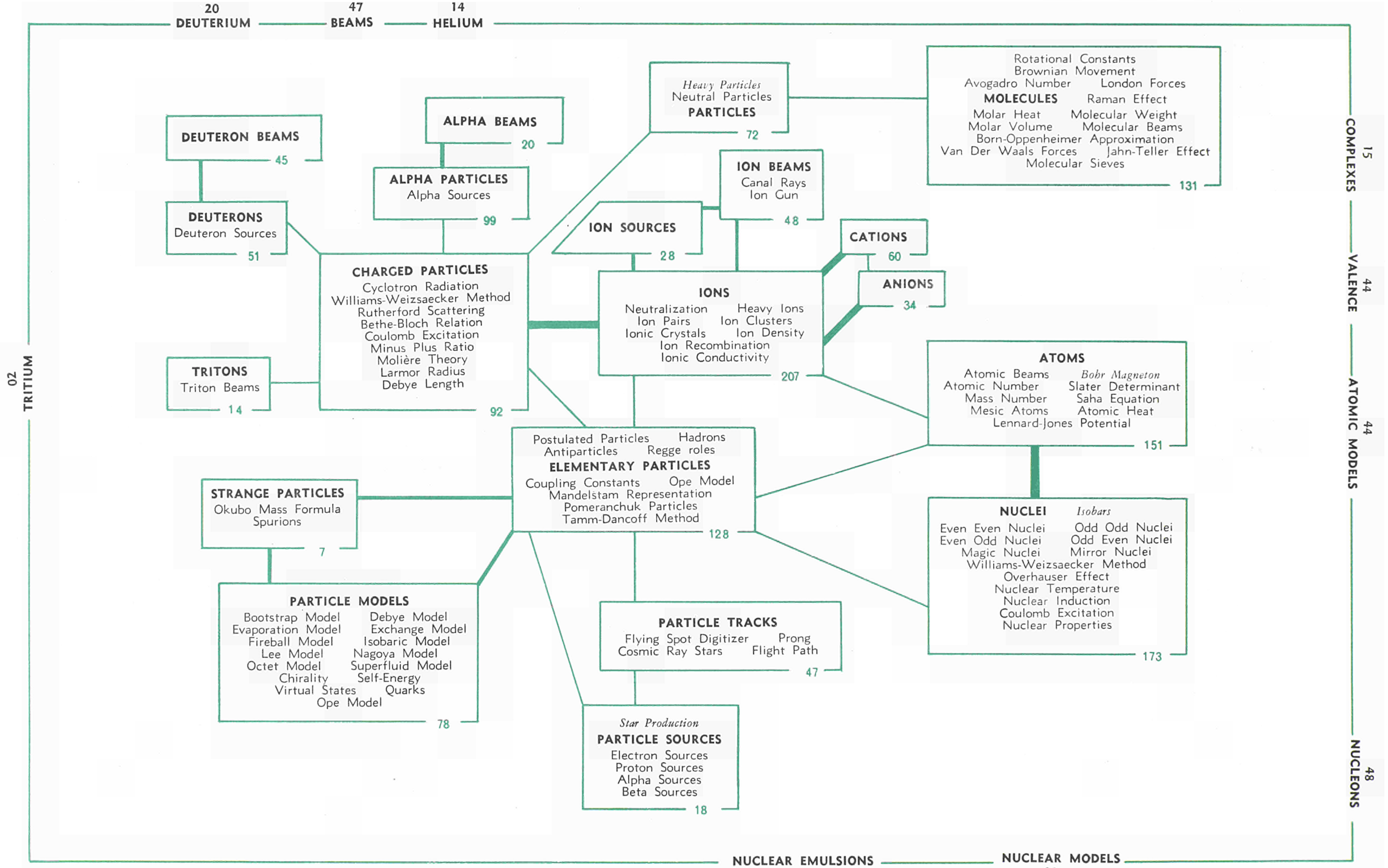
RADIO WAVES
Radiofrequency
Whistlers
40

INFRARED RADIATION
40

MICROWAVES
Ultra High Frequency
45

RADAR
4

PHOTOMETRY 38 — OSCILLATIONS 42 — LASERS 37 — MASERS 37 — RESONANCE 44 — MODULATION 42


20
DEUTERIUM
47
BEAMS
14
HELIUM
02
TRITIUM
15
COMPLEXES
44
VALENCE
44
ATOMIC MODELS
48
NUCLEONS
DEUTERON BEAMS
45
ALPHA BEAMS
20
ALPHA PARTICLES
Alpha Sources
99
DEUTERONS
Deuteron Sources
51
TRITONS
Triton Beams
14
CHARGED PARTICLES
Cyclotron Radiation
Williams-Weizsaecker Method
Rutherford Scattering
Bethe-Bloch Relation
Coulomb Excitation
Minus Plus Ratio
Molière Theory
Larmor Radius
Debye Length
92
Heavy Particles
Neutral Particles
PARTICLES
72
Rotational Constants
Brownian Movement
Avogadro Number
London Forces
MOLECULES
Raman Effect
Molar Heat
Molecular Weight
Molar Volume
Molecular Beams
Born-Oppenheimer Approximation
Van Der Waals Forces
Jahn-Teller Effect
Molecular Sieves
131
ION BEAMS
Canal Rays
Ion Gun
48
ION SOURCES
28
CATIONS
60
ANIONS
34
IONS
Neutralization
Heavy Ions
Ion Pairs
Ion Clusters
Ionic Crystals
Ion Density
Ion Recombination
Ionic Conductivity
207
ATOMS
Atomic Beams
Bohr Magneton
Atomic Number
Slater Determinant
Mass Number
Saha Equation
Mesic Atoms
Atomic Heat
Lennard-Jones Potential
151
Postulated Particles
Hadrons
Antiparticles
Regge roles
ELEMENTARY PARTICLES
Coupling Constants
Ope Model
Mandelstam Representation
Pomeranchuk Particles
Tamm-Dancoff Method
128
STRANGE PARTICLES
Okubo Mass Formula
Spurions
7
NUCLEI
Isobars
Even Even Nuclei
Odd Odd Nuclei
Even Odd Nuclei
Odd Even Nuclei
Magic Nuclei
Mirror Nuclei
Williams-Weizsaecker Method
Overhauser Effect
Nuclear Temperature
Nuclear Induction
Coulomb Excitation
Nuclear Properties
173
PARTICLE MODELS
Bootstrap Model
Debye Model
Evaporation Model
Exchange Model
Fireball Model
Isobaric Model
Lee Model
Nagoya Model
Octet Model
Superfluid Model
Chirality
Self-Energy
Virtual States
Quarks
Ope Model
78
PARTICLE TRACKS
Flying Spot Digitizer
Prong
Cosmic Ray Stars
Flight Path
47
Star Production
PARTICLE SOURCES
Electron Sources
Proton Sources
Alpha Sources
Beta Sources
18
NUCLEAR EMULSIONS
38
NUCLEAR MODELS
44

47 BEAMS

45 PHOTOFISSION

47 ELEMENTARY PARTICLES

49 BARYONS

47 NUCLEI

54 NEUTRON DETECTION

53 BREEDING

53 MULTIPLICATION FACTORS

PROTON BEAMS 88

ANTIPROTONS 8

7 **PROTONS**
Proton Sources
Bevatron
218

ANTINUCLEONS
Fermi-Yang Theory
4

ANTINEUTRONS 1

NUCLEONS
Bethe-Goldstone Equation
Brueckner Method
Charge Independence
Dirac Form Factor
Effective Range Theory
Fermi Model
Fermi-Yang Theory
Gell-Mann Model
Hard-Core Potential
N*Resonances
Nucleon-Nucleon Potential
Takeda Theory
Wigner Force
112

NEUTRONS
Cadmium Ratio — Dineutrons
Carlson Method — Neutron Density
Case Method — Extrapolation Length
Feynman Method — Van Hove Theory
Lamb Theory — Serber-Wilson Method
Milne Problem — Wigner Effect
Nelkin Theory — Wick Method
Wick-Chandrasekhar Method
298

PHOTONEUTRONS 8

DELAYED NEUTRONS 8

PROMPT NEUTRONS 6

FAST NEUTRONS 102

Intermediate Neutrons
RESONANCE NEUTRONS
Fission Ratio
10

Collimated Neutrons
NEUTRON BEAMS
Neutron Diffraction
Porter-Thomas Distribution
102

NEUTRON SOURCES 39

EPITHERMAL NEUTRONS
Slow Neutrons
13

NEUTRON FLUX
Flux — Neutron Leakage
Disadvantage Factor
114

Slow Neutrons
THERMAL NEUTRONS
Fission Ratio — Cold Neutrons
Krieger-Nelkin Theory
Zemach-Glauber Formalism
95

DIFFUSION LENGTH
Migration Length
16

BUCKLING 11

Thermalization — *Stopping*
SLOWDOWN — Wick Method
Oracle-Code — Muft-Code
Van Hove Theory — Migration Area
Wigner-Wilkins Model
Wilkins Equation — Fermi Age
34

RELAXATION 19

EXCURSIONS 53

ABSORPTION 45

54 BETA DETECTION

45 BETA DECAY

47 ELEMENTARY PARTICLES

48 NUCLEONS

44 ENERGY LEVELS

BETA PARTICLES
Feather Analysis
Sargent Diagrams
Beta Sources
Fermi Plot
75

LAMBDA PARTICLES
Antilambda Particles
Lambda Neutral
18

XI PARTICLES
Antixi Particles
Xi-Minus
Xi-Neutral
4

SIGMA PARTICLES
Antisigma Particles
Sigma-Plus
Sigma-Neutral
Sigma-Minus
13

HYPERFRAGMENTS
6

Negatrons
ELECTRONS
Auger Effect
Bloch Theory
Delta Rays
Electron Gas
Electron Spin Resonance
Electron Temperature
Heitler-London Theory
Kikuchi Lines
Knight Shift
Oscillator Strength
Ramsauer Effect
BCS Theory
Electron Capture
Cascade Showers
Electron Density
Electron Pairs
Electron Sources
K-Capture
L-Capture
Microtrons
Landau Damping
Moeller Scattering
Positronium
Polarons
396

ELECTRON BEAMS
Appearance Potential
Electron Probes
Cathode Rays
94

ANTIHYPERONS
2

HYPERONS
Y*Resonances
Y1*Resonances
Omega Particles
V Particles
27

BARYONS
8

Mesic Atoms
Meson Cloud
MESONS
A Resonances
B Resonances
C Resonances
ABC Resonances
K*Resonances
Rho Resonances
A1 Resonances
73

POSITRONS
Positronium
Cascade Showers
36

LEPTONS
10

NEUTRINOS
Neutrettos
Intermediate Vector Boson
23

ANTINEUTRINOS
3

Mu-Mesons
MUONS
Muons-Plus
Muons-Minus
Muons-Neutral
Muonium
Michel Parameter
37

ANTIMESONS
Antikaons
4

K-Mesons *Kappa Mesons*
KAONS Kaons-Plus
Chi Mesons Kaons-Minus
Antikaons Kaons-Neutral
Theta Mesons
Tau Mesons
47

Pi-Mesons
PIONS
Pions-Plus
Pions-Minus
Pions-Neutral
Ope Model
Fermi Model
Gell-Mann Model
Goldberger-Treiman Relation
113

RESONANCE
44

53 REACTOR OSCILLATORS — 57 TESTING — 27 MATERIALS TESTING

53 REACTIVITY
53 CRITICALITY
32 PRESSURE
35 BOILING
51 HOMOGENEOUS
35 HIGH TEMPERATURE
48 FAST NEUTRONS
53 BREEDING
52 REACTOR CORE

EXPONENTIAL PILES — 6

Cavity Assembly
CRITICAL ASSEMBLIES — 24
Jezebel, Krito, ZPR-3, Godiva-1, ETRC, Marius, HERO, PRCF, ECO

RESEARCH REACTORS — 109
Pool Type Reactors
Melusine, ARS-1, BSR-1, FRM, ETR, ATR, BR-2, HFIR, MTR, HWCTR, ORR, PCTR, WWR Series, PRTR, TREAT, TRIGA Series, SPERT-1

REACTORS — 478

Graphite-Gas Series
HTGR, EGCR, EDF-1, BEPO, AGR, ML-1, AVR, Berkeley, EL-4, Dragon, Calder Hall

PWR
Shippingport, CETR, CRBR, SM-1, YEAC

BWR
EBWR, BONUS, BORAX-5, Dresden, VBWR

Homogeneous-R.
HRE-1

Organic-Cooled
Orgel Reactor, OMRE, EOCR, PNPF

Liquid-Metal-Cooled
HNPF, SRE

Molten-Salt-Reactors
MSRE

Heavy-Water-Reactors
CANDU, MZFR, CVTR, NRU, EL-3, NRX, DIDO, NPD, Halden, BHWR

Fast Reactors
Rapsodie, DFR, SEFOR

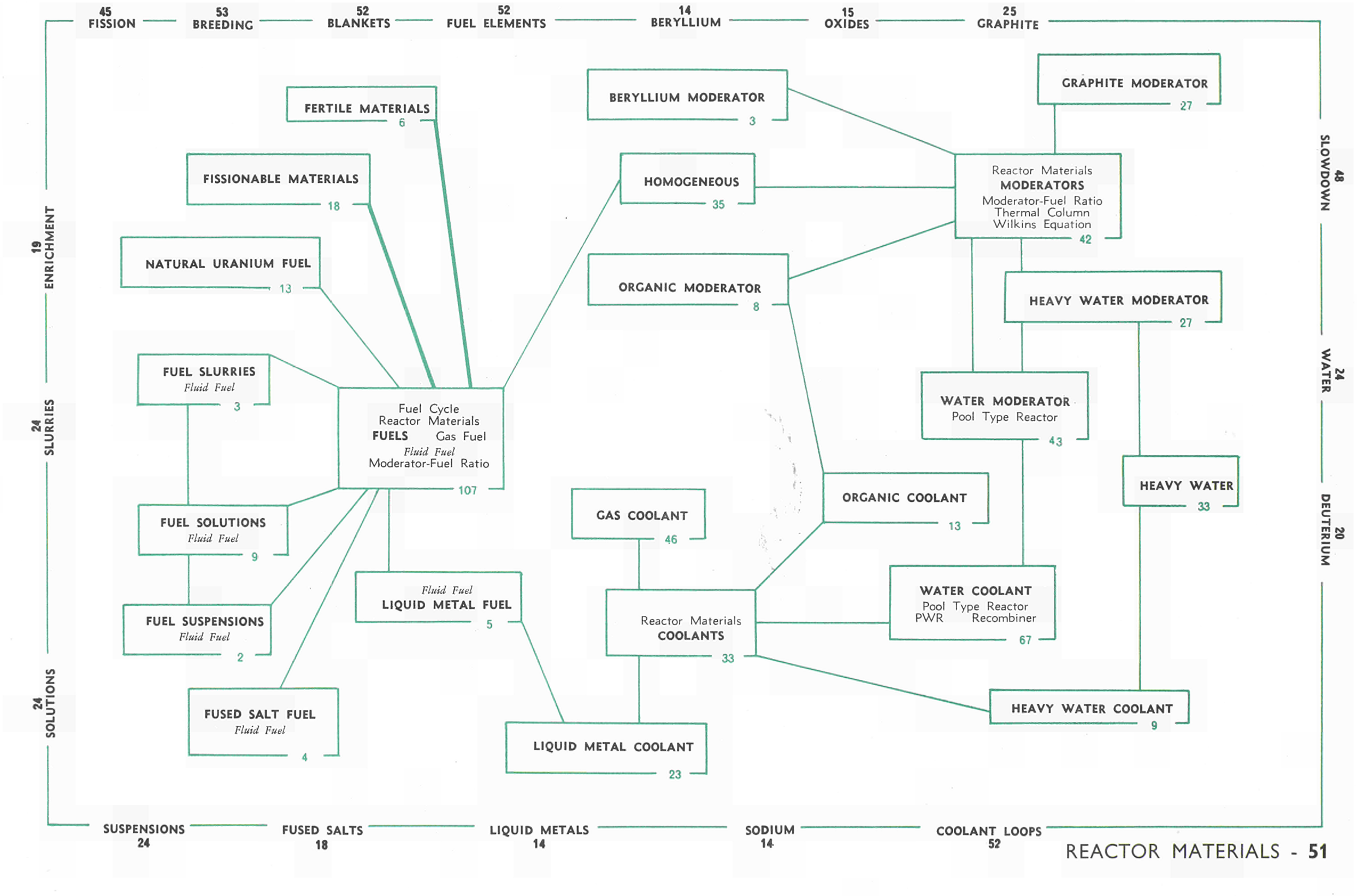
Breeder-Reactors
EBR-1, EBR-2, EFFBR

Propulsion-Reactors
Savannah, Otto Hahn, SNAP Reactors

POWER PLANTS — 154

POWER 32 — SHIPS 32 — ROCKETS 43 — AIRCRAFT 32

REACTOR TYPES - **50**


45 FISSION
53 BREEDING
52 BLANKETS
52 FUEL ELEMENTS
14 BERYLLIUM
15 OXIDES
25 GRAPHITE
48 SLOWDOWN
24 WATER
20 DEUTERIUM
19 ENRICHMENT
24 SLURRIES
24 SOLUTIONS
FERTILE MATERIALS 6
FISSIONABLE MATERIALS 18
NATURAL URANIUM FUEL 13
FUEL SLURRIES Fluid Fuel 3
FUEL SOLUTIONS Fluid Fuel 9
FUEL SUSPENSIONS Fluid Fuel 2
FUSED SALT FUEL Fluid Fuel 4
Fuel Cycle Reactor Materials FUELS Gas Fuel Fluid Fuel Moderator-Fuel Ratio 107
Fluid Fuel LIQUID METAL FUEL 5
BERYLLIUM MODERATOR 3
HOMOGENEOUS 35
ORGANIC MODERATOR 8
GRAPHITE MODERATOR 27
Reactor Materials MODERATORS Moderator-Fuel Ratio Thermal Column Wilkins Equation 42
HEAVY WATER MODERATOR 27
WATER MODERATOR Pool Type Reactor 43
HEAVY WATER 33
GAS COOLANT 46
ORGANIC COOLANT 13
WATER COOLANT Pool Type Reactor PWR Recombiner 67
Reactor Materials COOLANTS 33
HEAVY WATER COOLANT 9
LIQUID METAL COOLANT 23
SUSPENSIONS 24
FUSED SALTS 18
LIQUID METALS 14
SODIUM 14
COOLANT LOOPS 52

35 HEAT TRANSFER

51 COOLANTS

42 ANALOG SYSTEMS

46 SHIELDING

34 FLUID FLOW

53 LEAKS

27 MATERIALS TESTING

53 CONTROL

51 FERTILE MATERIALS

51 FUELS

28 FINS

COOLANT LOOPS
Hot Channel Factors
Hot Channels
Circulation
Bypass
60

MOCKUP
Models
Phantoms
Simulation
32

SHIELDING MATERIALS
Reactor Materials
14

Detectors
LEAK DETECTORS
6

Reactor Materials
REFLECTORS
Mirrors
25

REACTOR CORE
Core Channels
Reactor Lattices
107

IN PILE LOOPS
Core Channels
Loops
20

FUEL ELEMENTS
Fuel Element Clusters
Spent Fuel Elements
Fuel Plates
Fuel Rods
Fuel Pins
173

BLANKETS
11

Shim Rods
Control Rod Worth
CONTROL ELEMENTS
43

SPACERS
37

JACKETS
Sleeves
7

FUEL CANS
Cladding
42

52 CONTROL SYSTEMS

29 CANNING

28 CONFIGURATION

28 ZONES

48 RELAXATION

51 FERTILE MATERIALS

09 RADIATION PROTECTION

27 FAILURES

52 CONTROL ELEMENTS

09 CLEANING

51 FUELS

45 FISSION

52 LEAK DETECTORS

42 OSCILLATIONS

42 PULSES

MCA *Nuclear Safety*
REACTOR SAFETY
47

BURNOUT
Hot Spot
12

LOADING
Charging
27

DISMANTLING
0

Runaway
EXCURSIONS
8

Incidents
ACCIDENTS
MCA *Damage*
34

LEAKS
Release
28

Shim Rods
SHUTDOWN
Scram
21

STARTUP
13

Diverging (Reactors)
CRITICALITY
Critical Mass
Subcritical
42

Four Factor Formula
MULTIPLICATION FACTORS
Resonance Escape Probability
Thermal Utilization
Thermal Fission Factor
Fast Fission Factor
17

BREEDING
Doubling Time
25

Repair
MAINTENANCE
18

REACTIVITY
Danger Coefficients
Power Coefficient
Void Coefficient
Doppler Reactivity
Reactor Kinetics
Reactor Noise
Reactor Period
72

Scanning
INSPECTION
19

OPERATION
170

POISONING
19

REACTOR OSCILLATORS
3

BURNUP
Consumption
Depletion
Depleted Uranium
Spent Fuel Elements
38

MONITORING
Alarm Systems
Survey Meters
71

CONTROL
Cybernetics
Handling
96

Nuclear Cascade *Cascades*
Transitions **TRANSIENTS**
Markov Process
Peaks *Spikes*
Selection Rules
Siegert Theorem
Oscillator Strength
138

REMOTE CONTROL
Telemetry
19

CONTROL SYSTEMS
Air Conditioning
Voltage Regulator Thermostats
Cryostats Divertors Fuses
63

TRANSFER FUNCTIONS
Feedback
12

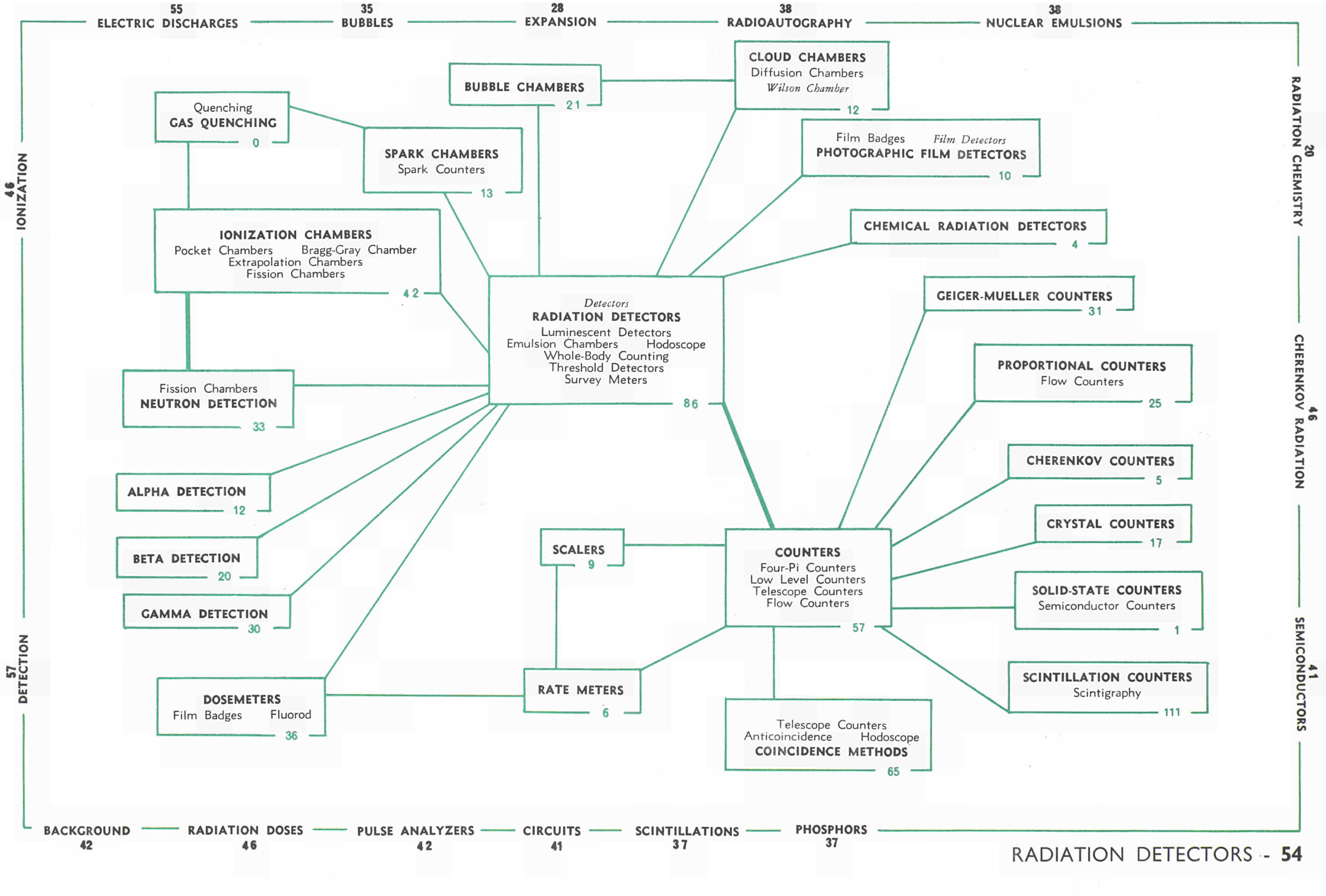
REMOTE HANDLING
Manipulators *Handling*
Hot Cells Gloveboxes
39

AUTOMATION 42

SERVOMECHANISMS 32

RADIATION DETECTORS 54

COMPUTERS 42


55
ELECTRIC DISCHARGES
35
BUBBLES
28
EXPANSION
38
RADIOAUTOGRAPHY
38
NUCLEAR EMULSIONS
46
IONIZATION
20
RADIATION CHEMISTRY
46
CHERENKOV RADIATION
41
SEMICONDUCTORS
57
DETECTION
BUBBLE CHAMBERS
21
CLOUD CHAMBERS
Diffusion Chambers
Wilson Chamber
12
Quenching
GAS QUENCHING
0
SPARK CHAMBERS
Spark Counters
13
Film Badges
Film Detectors
PHOTOGRAPHIC FILM DETECTORS
10
IONIZATION CHAMBERS
Pocket Chambers
Bragg-Gray Chamber
Extrapolation Chambers
Fission Chambers
42
CHEMICAL RADIATION DETECTORS
4
Detectors
RADIATION DETECTORS
Luminescent Detectors
Emulsion Chambers
Hodoscope
Whole-Body Counting
Threshold Detectors
Survey Meters
86
GEIGER-MUELLER COUNTERS
31
PROPORTIONAL COUNTERS
Flow Counters
25
Fission Chambers
NEUTRON DETECTION
33
CHERENKOV COUNTERS
5
ALPHA DETECTION
12
CRYSTAL COUNTERS
17
BETA DETECTION
20
SCALERS
9
COUNTERS
Four-Pi Counters
Low Level Counters
Telescope Counters
Flow Counters
57
SOLID-STATE COUNTERS
Semiconductor Counters
1
GAMMA DETECTION
30
SCINTILLATION COUNTERS
Scintigraphy
111
DOSEMETERS
Film Badges
Fluorod
36
RATE METERS
6
Telescope Counters
Anticoincidence
Hodoscope
COINCIDENCE METHODS
65
BACKGROUND
42
RADIATION DOSES
46
PULSE ANALYZERS
42
CIRCUITS
41
SCINTILLATIONS
37
PHOSPHORS
37

22 SHOCK WAVES

46 BREMSSTRAHLUNG

45 NUCLEAR REACTIONS

45 NUCLEAR EXPLOSIONS

39 INDUCTION

46 WAVE PROPAGATION

46 SHIELDING

48 RELAXATION

47 BEAMS

41 CAPACITORS

28 CONFIGURATION

35 THERMODYNAMICS

57 STABILITY

Fusion Thermonuclear Explosions
THERMONUCLEAR REACTIONS
Project Sherwood
16

Project Matterhorn Rotational Transform
THERMONUCLEAR DEVICES
Zeta Device DCX Devices
Astron Ixion
19

Divertors
Kruskal Limit
STELLARATORS
5

Alfven Waves **PLASMA WAVES**
17

PLASMA
Landau Damping
Boltzmann-Vlasov Equation
Plasmoids Plasma Sheath
Plasmatron Plasma Guns
Duoplasmatron Plasma Drift
Cold Plasma Plasma Density
Collisionless Plasma
Project Matterhorn
Positive Column
Bohm Criterion
Debye Length
Scylla
194

MAGNETIC MIRRORS
Phoenix Device Alice Ogra
Pyrotron Toy Top Table Top
13

Magnetogasdynamics
MAGNETOHYDRODYNAMICS
Magnetic Reynolds Number
Hartmann Number
Alfven Waves
55

CONFINEMENT
Magnetic Compression
Containment Time
Magnetic Traps
Cusped Geometries
Scylla
25

TORUS
Perhapsatrons
13

BREAKDOWN
Paschen Law
7

PINCH Sceptre
Columbus S-4
Kink Instability
Helical Instability
Flute Instability
Sausage Instability
Hard Core Pinch
Perhapsatrons
Theta Pinch
Zeta Device
16

Sparks Flash Tubes
Discharges Ignition
ELECTRIC DISCHARGES
Townsend Discharge Corona Effect
Positive Column Penning Effect
Bohm Criterion Canal Rays
Glow Discharges
Geissler Tube
69

Carbon Arcs
ELECTRIC ARCS
40

Langmuir Probe
PLASMA DIAGNOSTICS
10

ELECTRIC CONDUCTIVITY 40

ELECTRIC CHARGES 40

IONIZATION 46

ELECTRIC FIELDS 40

MAGNETIC FIELDS 39

47 DEUTERON BEAMS

48 PROTON BEAMS

47 ION BEAMS

49 ELECTRON BEAMS

37 BEAM OPTICS

55 TORUS

55 THERMONUCLEAR DEVICES

Bombardment
BEAMS
Molecular Beams
Atomic Beams
Triton Beams
Storage Rings
105

TARGETS
86

Tandem Accelerators
ACCELERATORS
Materials Testing Accelerator
Spiral Sector Accelerators
FFAG Accelerators
Storage Rings
Microtrons
51

BETATRONS
18

CYCLOTRONS
Synchrocyclotrons
Omegatron
Dees
43

DESY
Bevatron
Synchrocyclotrons
SYNCHROTRONS
Cambridge Electron Accelerator
ZGS Accelerator
Synchrophasotron
Cosmotrons
Nimrod
AGS
43

COCKCROFT-WALTON ACCELERATORS
2

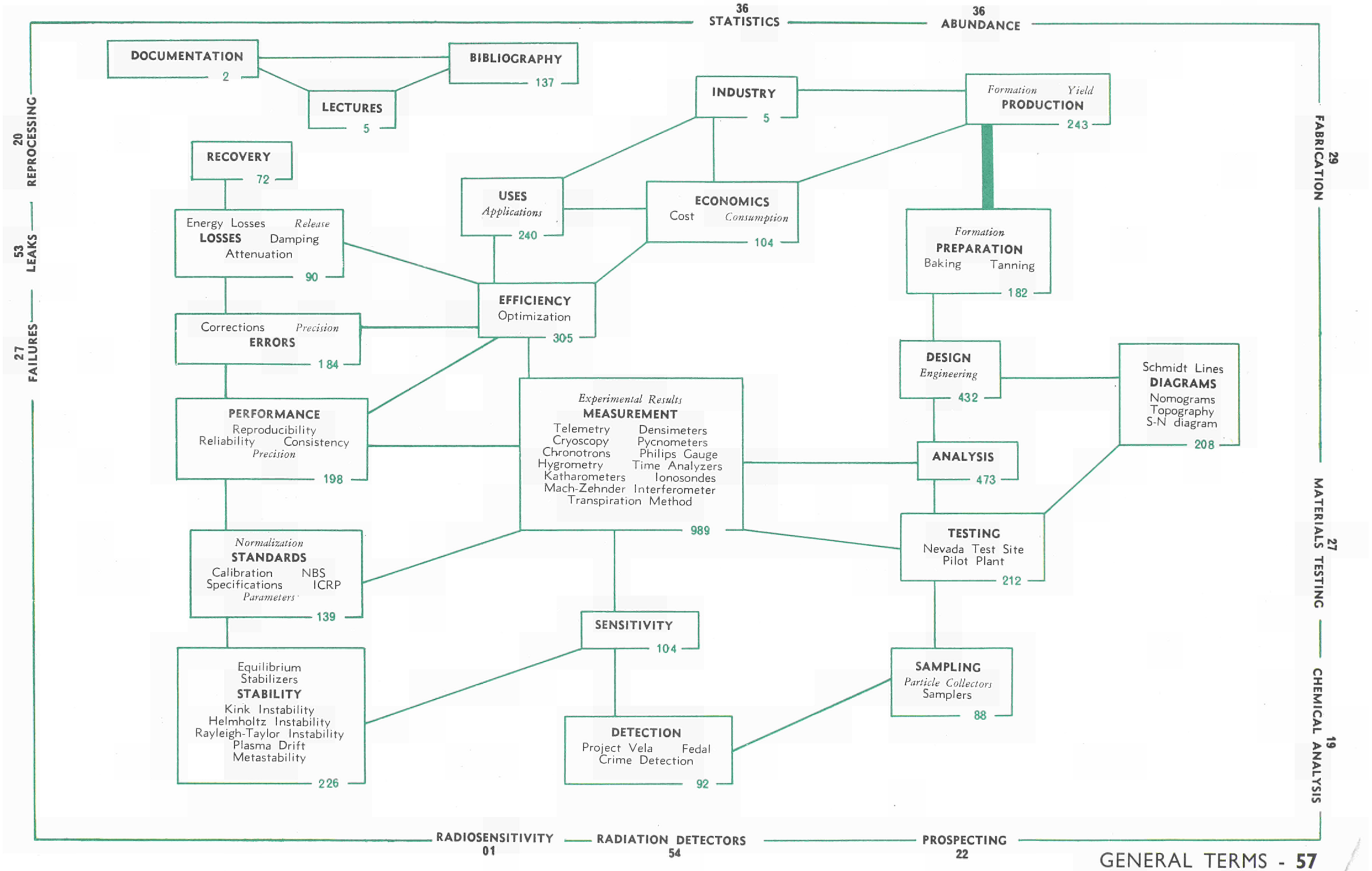
LINEAR ACCELERATORS
Drift Tubes
25

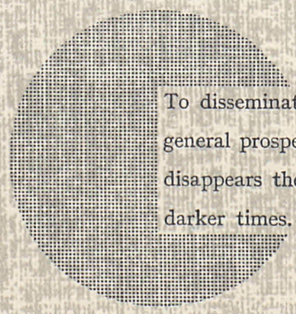
ELECTROSTATIC GENERATORS
4

VAN DE GRAAFF ACCELERATORS
12

PARTICLE SOURCES
47

GENERATORS
40


36
STATISTICS
36
ABUNDANCE
20
REPROCESSING
53
LEAKS
27
FAILURES
29
FABRICATION
27
MATERIALS TESTING
19
CHEMICAL ANALYSIS
DOCUMENTATION
2
BIBLIOGRAPHY
137
LECTURES
5
INDUSTRY
5
Formation Yield
PRODUCTION
243
RECOVERY
72
USES
Applications
240
ECONOMICS
Cost Consumption
104
Energy Losses Release
LOSSES Damping
Attenuation
90
Formation
PREPARATION
Baking Tanning
182
EFFICIENCY
Optimization
305
Corrections Precision
ERRORS
184
DESIGN
Engineering
432
Schmidt Lines
DIAGRAMS
Nomograms
Topography
S-N diagram
208
Experimental Results
MEASUREMENT
Telemetry Densimeters
Cryoscopy Pycnometers
Chronotrons Philips Gauge
Hygrometry Time Analyzers
Katharometers Ionosondes
Mach-Zehnder Interferometer
Transpiration Method
989
PERFORMANCE
Reproducibility
Reliability Consistency
Precision
198
ANALYSIS
473
Normalization
STANDARDS
Calibration NBS
Specifications ICRP
Parameters
139
TESTING
Nevada Test Site
Pilot Plant
212
SENSITIVITY
104
Equilibrium
Stabilizers
STABILITY
Kink Instability
Helmholtz Instability
Rayleigh-Taylor Instability
Plasma Drift
Metastability
226
SAMPLING
Particle Collectors
Samplers
88
DETECTION
Project Vela Fedal
Crime Detection
92
RADIOSENSITIVITY
01
RADIATION DETECTORS
54
PROSPECTING
22



To disseminate knowledge is to disseminate prosperity — I mean general prosperity and not individual riches — and with prosperity disappears the greater part of the evil which is our heritage from darker times.

Alfred Nobel

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